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EPA Superfund
Record of Decision:

MCCOLL
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FULLERTON, CA
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UNITED STATES ENVIRONMENTAL
PROTECTION AGENCY

RECORD OF DECISION

GROUNDWATER OPERABLE UNIT

MCCOLL SUPERFUND SITE
FULLERTON, CALIFORNIA

May 9, 1996

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LIST OF ACRONYMS

ARARs	Applicable or relevant and appropriate requirements
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
COPC	Chemicals of potential concern
CSF	Cancer slope factors
DCA	Dichloroethane
DTSC	Department of Toxic Substances Control
E&E	Ecology and Environment
EPA	Environmental Protection Agency
EPCs	Exposure point concentrations
FS	Feasibility Study
GAC	granular activated carbon
HEAST	Health Effects Assessment Summary Tables
HI	Hazard index
IAC	Interagency Committee
MCLs	Maximum Contaminant Levels
MCLGs	Maximum Contaminant Level Goals
MDLs	Method detection limits
µg/L	micrograms per liter
MSG	McColl Site Group
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
O&M	Operation and maintenance
OTC	Odor threshold concentration
ppb	Parts per billion
PRG	Preliminary remediation goal
RAO	Remedial Action Objective
RCRA	Resource Conservation and Recovery Act
RfDs	Reference doses
RI	Remedial Investigation
RME	Reasonable maximum exposure
ROD	Record of Decision
SARA	Superfund Amendments and Reauthorization Act of 1986
SVOCs	Semi-volatile organic compounds
THTs	Tetrahydrothiophene compounds
VOCs	Volatile organic compounds

DECLARATION FOR THE GROUNDWATER OPERABLE UNIT
RECORD OF DECISION

SITE NAME AND LOCATION

McColl Site
2650 Rosecrans Avenue
Fullerton, CA 92633

STATEMENT OF BASIS AND PURPOSE

This Record of Decision (ROD) presents the groundwater operable unit remedial action selected for the McColl Site in the City of Fullerton, County of Orange, California. This remedial action was chosen in accordance with the Comprtehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA) (42 CFR § 9601 et seq.), and, to the extent practicable, with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (40 CFR § 300 et seq.). The attached Administrative Record Index (Attachment A) identifies the documents upon which the decision is based. The State of California has commented in support of the selected remedy.

ASSESSMENT OF THE SITE

If the actual or threatened releases of hazardous substances from the Site are not addressed by implementing the remedial response action selected in this ROD, the Site may present an imminent and substantial endangerment to public health, welfare, or the environment.

DESCRIPTION OF THE REMEDY

EPA has selected Alternative #3 as presented in the Feasibility Study Report, Groundwater Operable Unite, McColl Superfund Site (EPA, February 1996) as the groundwater operable unit remedy for the McColl Site. The remedial action for groundwater is designed to work in conjunction with the remedial action for the McColl waste sumps, which includes capping of the sumps and construction of subsurface slurry walls around the sumps. The waste sump remedy will significantly reduce infiltration of site surface water and precipitation, thus reducing the potential for the sumps to impact groundwater in the future. The selected remedy for the contaminated groundwater operable unit for the McColl Site includes evaluation, design, and construction of infiltration controls to significantly (order of magnitude) reduce surface water infiltration from baseline estimates. These engineered controls will be implemented outside of the waste sump area. Measures/controls for consideration during design may include some or all of the following:

- Onsite management of surface water running onto the site property.
- Lining existing major drainage channels with low permeability materials.
- Grading or modifying (through placement of low permeability soils) areas adjacent to, but outside of the planned closure containment system.
- Groundwater monitoring (including additional wells) to demonstrate that the infiltration controls are effectively preventing further migration of site contaminants to and throughout the regional aquifer.
- EPA or the relevant State agency will implement offsite institutional controls as a contingency measure. If at the five year review the regional aquifer beyond the correct site boundary is found (in more than one offsite well) to contain site-specific contaminants above State or Federal Maximum Contaminant Level (MCLs)**1** or above the recommended (3.6 parts per billion (ppb)) or revised preliminary remediation goal (PRG) for tetrahydrothiophene (THT) compounds, offsite institutional controls will be implemented.
- Site maintenance and security until final operation and maintenance (O&M) plans take effect under the source operable unit remedy.

The groundwater remedy is intended to work in conjunction with the source remedy, and together will achieve the anticipated goal of protection of groundwater resources.

STATUTORY DETERMINATIONS

The selected remedy is protective of human health and the environment as required by section 121 of CERCLA. The selected remedial action, when complete, shall comply with applicable or relevant and appropriate environmental standards established under Federal and State environmental laws. The selected remedy is cost-effective and considered permanent treatment technologies to the maximum extent practicable. Because the source operable unit remedy**2** will result in hazardous substances remaining onsite above health-based levels, a review will be conducted within five years after commencement of the redial action to ensure that the remedy continues to provide adequate protection of human health and the environment.

DECISION SUMMARY

This Decision Summary provides an overview of the problems posed by the McColl Site groundwater operable unit. It also includes a description of the remedial alternatives considered and the analysis of these alternatives against the critieria set forth in the NCP. The Decision Summary explains the rationale for the remedy selection and how the selected remedy satisfies the statutory requirements of CERCLA.

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1 If both a Federal and a State of California MCL exist for a particular compound, the lower of the two MCLs is applied.

2 The June 1993 Record of Decision presents the source operable unit remedial action, which consists of a closure/containment system remedy for the twelve waste sumps.

I. SITE LOCATION AND DESCRIPTION

A. Site Name and Location

McColl Superfund Site
2650 Rosecrans Avenue
Fullerton, California 92633

B. Site Description

The McColl Superfund Site (the "Site") is located in Orange County, California on the northwest edge of the City of Fullerton closely bordering the City of Buena Park (Figure 1). The 22 acre Site was the location of 12 disposal pits operated by Eli McColl from 1942 to 1946 (Figure 2). During the operation of the disposal pits various oil refining companies disposed of refinery waste, predominantly spent sulfuric acid catalyst.

The predominant type of waste at the site is a hard black (asphaltic) waste with smaller volumes of viscous waste, contaminated drilling mud, and soils. The hard and viscous waste is characterized as having a low pH, high sulfur content, high concentrations of organic sulfur compounds, aromatic hydrocarbons and aliphatic hydrocarbons.

The Los Coyotes Country Club Golf Course was built in 1956/1957, with a portion of the course overlying the covered waste sump area referred to as the Los Coyotes area. That portion of the golf course is currently closed. The McAuley LCX Corporation purchased the Los Coyotes Country Club in December 1980. The Ramparts area of the site was never developed. A housing tract borders the site immediately to the east and southeast. The Ralph B. Clark Regional (County) Park is adjacent to the west of the site boundary. The southern boundary of the site is the Los Coyotes golf course. The northern boundary is Rosecrans Avenue. All of the sumps are currently covered by overburden by varying thickness.

C. Land and Water Use

Use around the site is predominantly residential with some developed and undeveloped open space. The residential use throughout the area is single family homes on approximately quarter acre lots. The residences are valued in the $200,000 to $300,000 range. Site demographics are dominated by older European-American professional with families or retirees. There has been an increase of Asian professional (predominantly Korean) with young families throughout the late 1980s and 1990s.

Surface water flows from the upper reaches of the hills across the site from north to south. The largest of these drainage areas runs from the West Coyote Hills area to the north, into a drainage channel under Rosecrans and onto the site. Once onsite, this channel drains to the low-lying area to the north and west of the Los Coyotes waste pit area. Surface water from the Ramparts portion of the site and the eastern side of the Los Coyotes waste pits drains into a channel at the boundary of the southeastern portion of site and then into the regional surface water collection system.

Groundwater near the site is not currently used for public water supply. The nearest municipal well (Coyote Well 12A) is located at the corner of Gilbert and Pioneer, 3,000 feet crossgradient from the site.

D. Regional Topography

As described in the Final Remedial Investigation Report, Groundwater Operable Unit, McColl Site (ENVIRON, December 1995), the site is located on the lower portion of the south side of the east-west trending West Coyote Hills at a median elevation of approximately 300 feet above mean sea level.

E. Hydrology

The regional hydrology consists of the near-surface sediment of the Pleistocene La Habra Formation. Beneath the relatively fine-grained La Habra Formation sediments are the coarser sandy gravels and gravelly sands of the Coyote Hills Formation. The sedimentary units dip approximately 10 degrees to the southwest.

Groundwater beneath the site is found in multiple shallow perched units and in the regional aquifer approximately 160 to 200 feet below the Site ground surface. The shallow perched units have been designated during the Remedial Investigation alphabetically from the shallowest to the deepest.

The shallowest perched groundwater unit is the "A" unit. The lower permeability layer of natural soils which underlies the "A" unit surfaces onsite in the vicinity of the Los Coyotes portion of the site. The "A" unit does not directly intersect with the regional acquifer near the site. The "A" unit is monitored by the following monitoring well: P-2S and P-3S.

The "B" unit originates in the central portion of the site. The surface of the "B" unit low permeability layer is approximately 50 feet below the bottom of the Los Coyotes Sumps. The "B" unit is perched to the north of the southern McColl site boundary. Approximately five hundred feet south of the site, the "B" clay packet dips to the saturated interval of the "C" flow unit. The "B" unit is monitored by the following wells: P-21,P-41,P-5S,P-51,P-6S, and P-10D.

The "C" unit originates in the upper (northern or upland) portions of the site. The surface of the "C" unit low permeability layer lies approximately 50 feet below the bottom of the Ramparts sumps/pits and 150 feet below the Los Coyotes portion of the site. Because of the characteristics of the subsurface conditions, the "C" zone is perched in the northern portion of the Site and is part of the regional aquifer in the southern portion of the site and to the south of the site. The "C" unit has been found to intersect the regional aquifer in the vicinity of well P-2D(R), at the southern site boundary. The wells that monitor the perched portion of the "C" unit are: W-6A and W-8A. The wells that monitor the "C" portion of the regional aquifer are: P-2D)R),P-3D,P-4D,P-5L,P-6D,P-9D, and P-10L.

A deeper "D" unit lies largely within the regional aquifer beneath the site. The "D" unit is monitored by the following wells: W-4,W-8B,W-9B,W-9C, W-10B, P-1D, and P-5D.

The gradient of the regional aquifer ("D" flow unit) is estimated to be approximately 0.0077 feet/feet beneath the McColl Site. Groundwater within the "A", "B", and "C" flow units is seasonally recharged by surface infiltration at or near the site and along buried coarse-grained sediments of current or historical drainage swales along the western and easter boundaries of the site.

Two municipal production wells were identified within seven thousand feet of the site during the Remedial Investigation (ENVIRON, December 1995). The closer of the two is the Coyote 12A Well. The "D" flow unit may have some equivalency to the shallowest screened interval of the Coyote 12A well. However, the Coyote 12A well in located three thousand feet cross-gradient to the site (ENVIRON, December 1995).

II. SITE HISTORY AND ENFORCEMENT ACTIVITIES

A. Source Remedy (Operable Unit)

The McColl site was added to the Superfund National Priorities List (NPL) in 1982.

Historically the source operable unit has been the subject of multiple investigations, pilot tests, and proposed remedies. A complete description of these can be found in the June 1993 ROD (US EPA) and the Final Full Scale Demonstration Test Report (US EPA, with contributions from ICF, Morrision Knudson, June 1995).

The McColl Site waste sumps are currently managed under the contingency remedy outlined in the June 1993 ROD. The remedy for the waste sumps is a Resource Conservation and Recovery Act (RCRA) equivalent cap(s) with subsurface barriers and monitoring. The current design includes a closure system consisting of two RCRA equivalent caps and slurry walls (Figure 3). The slurry walls are planned to extend a minimum of 3 feet below the bottom of the deepest sump and to completely surround the waste. The design of this final remedy is scheduled for completion in

December 1996.

B. Groundwater Investigation Conducted by Agencies

The following information is a brief summary of the historical groundwater investigations that have been conducted at the McColl Site.

Groundwater sampling/testing and investigations have been conducted at the McColl Site by various contractors to the State of California and EPA since 1981. More recently, the McColl Site Group (MSG) tasked ENVIRON to perform a Remedial Investigation/Fesibility Study (RI/FS). Beginning in 1981, the California Department of Healthy Services (DOHS), now the California Department of Toxic Substances Control (DTSC), started the first investigation of groundwater with the installation of one monitoring well (Well A-13). A groundwater sample collected from monitoring well A-13 in 1981 was found to contain sulfate, arsenic, t-butanol, and exhibited a pH of 2.8 (CH2M Hill, 1987). From 1981 to the start of the MSG RI/FS, a total of 22 monitoring wells were installed at and near the McColl Site to investigate the nature and extent of groundwater contamination. Five wells were screened at depths of less than 110 feet below ground surface (bgs), and seventeen wells were screened at depths ranging from 216 to 320 feet bgs. Subsequently, seven of these wells were abandoned. The table below presents a history of the well installation/abandonment program that was completed at the McColl Site prior to commencement of the MSG RI/FS.

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WELL INSTALLATIONS AND ABANDONMENTS PRIOR TO MSG RI/FS
McCOLL SITE

INSTALLER	Date	Scope
DRSC, Caltrans, ARB, SCAQMD	1981	In Ramparts area, 12 boreholes were drilled, including six in sumps, five in adjacent soils, and one in background. Analyses were for pH, sulfates, and heavy metals.
DOHS	1981	In Ramparts area, monitoring well A-13 was installed and a groundwater sample was collected. Analyses were for pH, sulfate and organic compounds.
Radian	1982	Three deep wells (depths of 232 to 273 feet) were installed. Well W-2 was located north of Ramparts area. Wells W-1 and W-3 were located south and southeast of the Los Coyotes areas. Wells W-1 and W-2 were later abandoned in 1991. The well head of well W-3 was covered during repaving of its street location.
DTSC	1983/1984	Four deep monitoring wells (W-4, W-5, W-6B, and W-8B) and two shallow wells 9W-6A and W-8A) were installed. Wells were first sampled in 1987. Wells W-5 and W-6B has since been abandoned.
CH2M Hill	1987	Six deep monitoring wells (P-1D through P-6D), and three shallow wells (P-3S, P-5S, and P-6S) were installed during an expanded groundwater assessment. Wells were sampled for organic and inorganic parameters. Well P-2D was replaced by Well P-2D(R) because Well P-2D had been damaged during installation.
Ecology and Environment	June 1989	Three deep upgradient wells (W-9B, W-9C, and W-10B) were installed.

Between June 1989 and December 1992, EPA performed routine groundwater quality monitoring. All sampling and testing of groundwater under this program followed a detailed sampling and analysis plan and data validation was performed.

C. RI/FS Performed by McColl Site Group (MSG) under US EPA Order

As a part of the EPA order issued to the four oil companies in August of 1993, EPA directed the oil companies, now called MSG, to complete the RI/FS for groundwater. The investigation supplemented the data from the existing 14 wells installed by EPA and the State. The investigation was conducted in two phases. At the completion of phrase II results, EPA and MSG had installed nine additional wells. Following evaluation of the phase II results, EPA and MSG agreed that one additional well would be required. The RI/FS included four rounds of groundwater sampling and analysis and aquifer testing. A baseline risk assessment was performed by ICF, contractor to EPA. MSG sumbitted the Draft Remedial Investigation Report to EPA on October 13, 1995. The Final Remedial Investigation Report was submitted on December 29, 1996. The Draft Feasibility Study Report was submitted on December 5, 1995. The Final Feasibility Study Report was revised by EPA based on the original draft and issued on February 7, 1996.

III. HIGHLIGHTS OF COMMUNITY INVOLVEMENT

The public participation requirements of sections 113(k)(2)(B)(i-v) and 117 of CERCLA have been satisfied in the remedy selection process.

While the community has historically had very strong organized, and vocal opinions regarding

the remedy selection process on the source operable unit, there has been less interest regarding groundwater as there are not any municipal or private wells impacted and results have generally indicated minimal impact on the regional aquifer. EPA has continued to provide fact sheets (10+) as updates on new groundwater information and to make itself available to answer questions regarding groundwater.

EPA has also regularly met with the local regulatory agencies and provided them with information on the groundwater investigation and proposed plan through the McColl Site Interagency Committee (IAC). The IAC consists of State regulatory, local regulatory, political, and community representatives. The IAC meetings have been held on a monthly or bimonthly basis since the 1980s.

Consistent with requirements of CERCLA and the NCP, EPA has conducted the following community relations activities. Recently, EPA issued the August 1995 Fact Sheet to summarize the results of the Remedial Investigation. In February 1996, EPA issued a Proposed Plan Fact sheet. An announcement of the proposed plan, public comment period, date, and location of the public meeting was printed in the Orange County register on February 25, 1996. EPA issued a press release on the first day of the public comment period (March 6, 1996). EPA briefed the IAC on the proposed plan on the day of the public meeting. On March 14, 1996, a public meeting was held at Parks Junior High School and was attended by approximately 10 community members, representatives of the State agencies, local agencies, McAuley LCX representatives, and MSG representatives. All of the community represented at the meeting that chose to publicity comment were in favor of the proposed plan.

Responses to local community comments made at the public meeting are presented in Attachment B. Details of the community involvement activities and responses to public comments received from the State and MSG are presented in the Responsiveness Summary (Attachment C).

IV. SCOPE AND ROLE OF THE RESPONSE ACTION

The planned construction of the closure and containment system over the source waste sumps should serve to reduce long-term contamination of shallow or deeper groundwater at the site. However, based on the results of the EPA Baseline Risk Assessment for the McColl Superfund Site Groundwater Operable Unit (ICF, November 1995), residual contamination in the shallow groundwater exceeds Federal and California standards for drinking water and may present an imminent and substantial endangerment to human health if not addressed. The appropriate response for the shallow water takes into account the important fact that perched groundwater is not present in sufficient volume to serve as an exclusive source of future water supply.

V. SUMMARY OF SITE CHARACTERISTICS (GROUNDWATER)

In August of 1993, EPA ordered the McColl site Group to complete the RI and to perform the Feasibility Study. As part of the completion of the RI, MSG installed ten new monitoring wells. These new wells, along with the previously installed wells, totaled 24 monitoring wells. The results of three quarters of sampling performed during the MSG RI were used for Baseline Risk Assessment for the Groundwater Operable Unit. No known natural resource concerns exist for the site groundwater. As a result, an ecological assessment was not performed.

A. Groundwater

Initial (phase I) efforts of the MSG RI focused on the characterization of perched groundwater. Unfortunately, the cone penetrometer technology that was used did not reach the depth required to characterize deeper perched zones. Data were, however, collected from perched wells that had been installed and locations for new monitoring wells were selected based on these results along with the limited cone penetrometer data. The results for the groundwater monitoring are summarized in the following sections. Groundwater investigation results indicate that while contaminants from the waste sumps are present in perched water, they do not appear to result in contamination of the regional groundwater. A comprehensive list of the compounds of potential concern as presented and evaluated in the baseline risk assessment for the groundwater operable unit is presented below:

THIOPHENES	VOCs	SVOCs	INORGANICS
Tetrahydrothiophene	Acetone	Bis(2-ethylhexyl)phyhalate	Aluminum
2-methyltetrahydrothiophene	Benzene	Butylbenzylphthalate	Arsenic
3-methyltetrahydrothiophene	2-butanone	Dimenthylphthalate	Barium
	Carbon Disulfide	Di-n-butylphthalate	Beryllium**3**
	Chloroform	Isophorone	Cadmium
	1,2-dichloroethane	2-Methylphenol	Chromium
	Ethylbenzene	Nitrobenzene	Cobalt
	2-hexanone	Phenol	Copper
	Methylene Chloride	Pyrene	Lead
	Toluene		Manganese
	Xylenes (total)		Mercury
			Nickel
			Selenium
			Thallium
			Vanadium
			Zinc

VOCs = Volatile Organic Compounds
SVOCs = Semi-volatile Organic Compounds

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3 Although beryllium was not identified in waste and sump samples (CH2M Hill, 1987), beryllium was selected as a COPC for the risk assessment because it was positively detected in an least one groundwater sample. The existence of beryllium in groundwater may be associated with the leachability of chemicals in vadose zone soils due to the low pH in groundwater.

Organics (not including THT compounds)

The two VOCs detected above MCLs in the groundwater system are benzene and, at low concentrations, 1,2-dichloroethane (1,2-DCA). Semi-volatile organic compounds were not consistently detected in the groundwater or were determined to be laboratory contaminants. Benzene concentrations have equaled or exceeded (up to 470 ppb) the State MCL of 1 ppb in the "B" flow unit. Benzene in the perched "C" well W-6A ranged from 500 to 800 ppb. 1,2-DCA concentrations exceeded the State MCL of 0.5 ppb in one "B" flow unit well (P-5l) and one "C" flow unit well (P-5L) and the results were as low as 1 and 2 ppb.

Tetrahydrothiophene (THT) Compounds

THT compounds, including tetrahydrothiophene, 2-methyltetrahydrothiophene, 3-methyltetrahydrothiophene, were detected in several monitoring wells during the sampling program. THT compounds have a very low odor threshold (50 percent of the population can detect at 0.6 ppb) and readily degrade water to less than aesthetically acceptable conditions.

THT compounds have been detected regularyly in the perched "A", "B", "C" and the regional "C" units. THT compounds have not been detected in the "D" unit; however, additional monitoring will be required to confirm the absence of THTs in the "D" unit southwest (downgradient) of the site.

Concentrations of THT compounds in the perched units have ranged as high as 43,000 ppb (W-6A). Approximately five hundred feet downgradient of the Los Coyotes sump area, THT compounds are detected in portion of the "B" and "C" flow units (Wells P-10D and P-10L at 1,490 and 190 ppb, respectively). It is suspected that the rate of migration is limited by the seasonal saturation and natural attenuation in the perched units. This migration of site contaminants (THTs) from the perched to the regional aquifer indicates a possible pathway exists for other organics found in the perched units. However, it is also important to point out that there are regional "C" wells downgradient of the site and sump areas that have no detected THT compounds, such as Well P-9D.

Inorganic Compounds

Concentrations of inorganics in the onsite perched groundwater exceed background concentrations calculated for the regional aquifer. However, it is important to note that the source waste in the waste pits at the McColl Site does not contain elevated inorganics (with the exception of sulfur dioxide). The waste is acidic and as liquid (water) comes into contact with the waste, the water also becomes acidic. The presence of these higher concentrations of inorganics in perched groundwater samples may be attributed to the preferential leachability of inorganics in the vadose zone soils from contact with acidic perched water.

Four inorganic compounds occur above background concentrations or state MCLs: arsenic, beryllium, chromium, and manganese. Arsenic is ubiquitous at low concentrations in groundwater at the site. Evaluation of "D" flow unit background wells indicate a background concentration of 9.7 ppb. The State and Federal MCL is 50 ppb and has been slightly exceeded in perched well P-21. The higher concentrations of arsenic occur in wells with low pH and concentrations significantly decrease off-site once the pH rises to natural levels downgradient of the site.

Background "D" flow unit wells indicate a concentration for beryllium of 8.3 ppb. This background concentration exceeds the State MCL of 4 ppb for beryllium. Dissolved beryllium was detected above the state MCL in three on-site wells (P-21, P-41, W-6A) of the twenty-four wells. Beryllium concentrations exceeding the State MCL ranged from 5.7 to 90 ppb.

The "D" flow unit background wells indicate a background concentration for chromium of 3.2 ppb. Dissolved chromium was detected above the State MCL of 50 ppb in perched wells P-41 and W-6A. Chromium concentrations in these wells ranged from 67.8 to 424 ppb, and the water in these wells had a low pH.

Manganese was measured at a background concentration of 4,300 ppb. Manganese has been found to occur at concentration as high as 30,100 to 41,700 ppb in perched wells with low pH. Concentrations of manganese. However, the Federal secondary drinking water standard for is no MCL for manganese. However, the Federal secondary bringing water standard for manganese is 50

ppb.

B. Data Validation

Data validation of analytical results was performed in accordance with procedures outlined in the Quality Assurance Project Plan prepared by ENVIRON for MSG.

VI. SUMMARY OF SITE RISKS

The Baseline Risk Assessment for the Groundwater Operable Unit was completed in November 1995 by an EPA contractor (ICF). The purpose of the Risk Assessment was to evaluate the public health and environmental risks posed by contaminants detected in groundwater at the site. The wells screened in both the perched and regional aquifer were evaluated in the Risk Assessment. A separate baseline public health evaluation for the source/soil waste sumps was performed in May 1992 (ICF).

The Baseline Risk Assessment for the Groundwater Operable Unit and this ROD recognize that the perched portion of each individual flow zone would not yield sufficient volume of water for potential exposures. This ROD also recognizes that the perched zones are of potential concern because it has been demonstrated by the presence of THT compounds in the regional aquifer wells that contaminants found in shallower zones can migrate into the regional aquifer.

The following sections on risk assessment are presented in the Executive Summary of the Baseline risk assessment for the Groundwater Operable Unit (ICF, November 1995):

Selection of Chemical of Potential Concern

Groundwater data obtained from the three most recent quarterly groundwater sampling events were identified as the most appropriate database to evaluate current site conditions. The sampling events occurred in September 1994, January 1995, and April 1995 (ENVIRON, 1995a, 1995b, and 1995c).

A screening analysis was conducted to determine the areas of groundwater within each zone that may have the highest concentrations of chemicals. It was assumed that a well(s) in each flow unit represents the center of any potential plume migrating from the Site. The manner in which the wells were selected to represent chemical concentrations in each flow unit is designed to be conservative, by selecting narrow areas in which the highest concentrations are observed. The analysis consisted of comparing the maximum chemical concentrations in each individual well with the most conservative chemical-specific Federal or California MCL[4] and a chemical-specific tap water PRG, as summarized by EPA Region IX (EPA, 1995a). Individual wells or a group of wells was selected based on the frequency of detection of chemicals, the toxicity of the chemicals detected, and the ratios of the maximum chemical concentration to the MCLs and tap water PRGs.

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4 If both a Federal and a California MCL exist for a particular compound, the lower of the two MCLs was used in the screening analysis. For instance, benzene has a Federal and a California MCL of 5 and 1 μg/L, respectively. In this scenario, the California MCL was used in the screening evaluation.

Individual wells were selected to represent groundwater in the "A" and "D" flow units, and groundwater in the perched and regional "C" flow units. Two separate wells were selected to represent the "B" flow unit primarily because of different chemical constituents. The wells selected as a result of this screening evaluation are presented below.

AQUIFER	FLOW UNIT ZONE	WELL
perched	A	P-3S
perched	B	P-21 & P-6S
perched	C	W-6A
regional	C	P-5L
regional	D	W-4

Chemicals of potential concern (COPCs) were selected if organic and inorganic chemicals were detected in at least one sample above their respective method detection limits (MDLs). Detected chemicals (from the wells identified based on the results of the screening analysis) were selected to represent the chemicals that are attributable to the Site and that are of greatest concern from a health risk standpoint (i.e., the COPCs). Of the inorganics, iron, magnesium, potassium, and sodium were eliminated as COPCs because they are considered essential nutrients. Inorganic chemicals that are present at naturally occurring levels may also be eliminated from the risk assessment. Groundwater data collected from three off-site upgradient wells were used to represent background. However, given that these wells are screened in the "D" flow unit of the regional aquifer, a comparison can only be made for groundwater data that were also collected from wells screened in the "D" flow unit (i.e., well W-4). Based on an analysis of groundwater anthropogenic in orgin. Consequently, with the exception of the essential nutrients, inorganics detected in at least one sample above the MDL from well W-4 were selected as COPCs. A comprehensive list of COPCs evaluated in this risk assessment is presented below.

THIOPHENES	VOCs	SVOCs	INORGANICS
Tetrahydrothiophene	Acetone	Bis(2-ethylhexyl)phthalate	Aluminum
2-methyltetrahydrothiophene	Benzene	Butylbenzylphthalate	Arsenic
3-methyltetrahydrothiophene	2-butanone	Dimethylphthalate	Barium
	Carbon Disulfide	Di-n-butylphthalate	Beryllium**5**
	Chloroform	Isophorone	Cadmium
	1,2-dichloroethane	2-Methylphenol	Chromium
	Ethylbenzene	Nitrobenzene	Cobalt
	2-hexanone	Phenol	Copper
	Methylene Chloride	Pyrene	Lead
	Toluene		Manganese
	Xylenes (total)		Mercury
			Nickel
			Selenium
			Thallium
			Vanadium
			Zinc

VOCs = Volatile Organic Compounds
SVOCs = Semi-volatile Organic Compounds

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5 Although beryllium was not identified in waste and sump samples (CH2M Hill, 1987), beryllium was selected as a COPC for this risk assessment because it was positively detected in at least one groundwater sample. The existence of beryllium in groundwater may be associated with the leachability of chemicals in vadose zone soils due to the low pH in groundwater.

Toxicity Assessment

For each of the COPCs identified for this risk assessment, relevant toxicity criteria were identified from EPA's Integrated Risk Information System (IRIS) database (EPA, 1995b). When not available on IRIS, the Health Effects Assessment Summary tables (HEAST) (EPA, 1994) and EPA's Region IX Preliminary Remediation Goals (PRGs) (EPA 1995a) were consulted. If no values could be identified from either source, the chemical was not evaluated quantitatively. COPCs that lack agency-derived toxicity criteria include the thiophene-based compounds. In addition, there are no available toxicity values for evaluating dermal (uptake) exposures. For this risk assessment, oral cancer slope factors (CSFs) and reference doses (RfDs) were used to evaluate dermal exposures.

Regulatory toxicity criteria that have been developed by Cal/EPA were also used and separately evaluated in this risk assessment. When Cal/EPA toxicity values were not available, EPA values were used. Cal/EPA has not derived RfDs or RfCs, and therefore an evaluation of potential risks was only conducted for chemicals that are classified as carcinogens.

Of the chemicals identified as being COPCs at the McColl Site, 11 are considered to be known

or suspected human carcinogens. Two chemicals are known human carcinogens based on sufficient evidence in human studies (Group A). One chemical is considered to be a probable human carcinogen based on limited evidence in human studies (Group B1). Eight chemicals are considered probable human carcinogens based on sufficient evidence in animal studies (Group B2). A list of carcinogenic COPCs is summarized below.

Group A	Group B1	Group B2
Arsenic	Cadmium	Beryllium
Benzene		Bis(2-ethylhexyl)phthalate
		Butylbenzylphthalate
		Chloroform
		1,2-DCA
		Isophorone
		Methylene Chloride
		Lead

Exposure Assessment

The McColl Site is located in an area zoned for single family residences. Residential homes are located adjacent to the Site on the east and south boundaries with the nearest home located approximately 200 feet from the sumps. It is assumed that no future residential development will occur on the McColl Site sumps and that the surrounding areas are likely to continue to support residential homes. Based on the current and expected future uses of the McColl Site, residential adults and children living in the vicinity of the Site represent potential exposed population.

Groundwater is not currently used as a source of potable water within the McColl Site. Water for adjacent communities is supplied by the local water district through a municipal distribution system. No shallow domestic wells are known to exist in the vicinity of the Site and irrigation water is supplied by the City of Buena Park. Therefore, no complete exposure pathways for chemicals in groundwater exist under current land use scenarios. However, potential future uses of the surrounding areas may result in the development and use of private and municipal water supply wells.

Based on an evaluation of current and future conditions at the McColl Site, the following exposure pathways were identified and evaluated for this risk assessment:

- incidental ingestion and dermal absorption of chemicals in groundwater; and
- inhalation of chemicals released from groundwater during domestic uses.

To quantify human health risks, exposure point concentrations (EPCs) of the chemicals in groundwater appropriate to each specific exposure pathway at each appropriate receptor location were developed. Potential exposures to groundwater were estimated based on chemicals already existing in groundwater, as observed in the selected set of onsite wells. No groundwater transport or contaminant leaching modeling was performed for this risk assessment. Furthermore, it was assumed that the chemical concentrations are unlikely to increase or decrease in the future. Concentrations of volatile chemicals in air released from potable water were conservatively estimated using EPA's default volatilization constant (0.5 mg/m3/mg/L) (EPA, 1991b).

Average concentrations from the three groundwater sampling rounds were used to represent the EPCs from the wells identified from the screening analysis. EPCs representing background were developed based on the arithmetic average of data collected from three off-site wells over three quarters. Potential risks were evaluated based on doses that were estimated both for a reasonable maximum exposure (RME) estimate and a more probable estimate of exposure.

Risk Characterization

EPA has established an acceptable range of risk (1 x 10-6 to 1 x 10-4 excess cancer risks) for known or suspected carcinogens at Superfund sites. If the calculated risks exceed 1 x 10-4 excess cancer risks, then remediation is usually required. For noncarcinogenic effects, a hazard index (HI) in excess of 1 generally indicates an unacceptable condition requiring remediation (EPA, 1992b).

The results of the risk assessment indicate that with the exception of the RME exposures for well W-4 (flow unit D), the carcinogenic risks associated with the regional aquifer are below or within the acceptable range of 1 x 10-6 and 1 x 10-4. The average and RME risks for well P-5L (flow unit C) are below 1 x 10-6. The RME cancer risks associated with well W-4 are 3 x 10-4 and 1 x 10-4 for adults and children, respectively, and are slightly above the target risk of 1 x 10-4. Arsenic is the primary chemical contributor to the overall risks. However, the concentrations of arsenic observed in well W-4 are below the MCL.

The potential risks associated with chemicals detected in background wells were also estimated. As indicated above, the only available site-specific background data are for the D flow zone. Under an average exposure scenario, the total background risks are below or within the acceptable range of 1 x 10-6 and 1 x 10-4. On the other hand, the estimated RME cancer risks attributed to chemicals detected in background wells are 2 x 10-4 and 1 x 10-4 for adults and children, respectively, and are primarily associated with the ingestion of beryllium. Although the RME risks are slightly above the target risk rage, the RME background risks are comparable to the estimated risks associated with regional well W-4. A summary of the total carcinogenic risks associated with the selected wells screened in the regional aquifer, including background wells, is provided below. The estimated risks using Cal/EPA CSFs are presented in parentheses.

SUMMARY OF TOTAL CARCINOGENIC RISKS (REGIONAL AQUIFER)

Flow Unit Well	Average Risk Adult	RME Risk Adult	Average Risk Child	RME Risk Child
C (P-5L)	2 x 10-7 (2 x 10-7)	7 x 10-7 (1 x 10-6)	2 x 10-7 (3 x 10-7)	3 x 10-7 (5 x 10-7)
D (W-4)	5 x 10-5 (5 x 10-5)	2 x 10-4 (3 x 10-4)	8 x 10-5 (8 x 10-5)	1 x 10-4 (1 x 10-4)
D (background wells)	4 x 10-5 (5 x 10-5)	2 x 10-4 (2 x 10-4)	7 x 10-5 (8 x 10-5)	1 x 10-4 (1 x 10-4)

The lowest and highest estimated risk values for individual wells screened in the perched flow zones are 6 x 10-6 and 4 x 10-3. The lowest risk is associated with chemicals detected in well P-3S (flow zone A) for adult receptors under an average exposure scenario. The highest estimated risk corresponds to chemicals detected in well W-6A (flow unit C) for child receptors under an RME exposure scenario. The primary exposure pathway contributing to the overall risks is from ingestion of groundwater. Arsenic in well P-3S and beryllium in well W-6A are the primary chemicals responsible for the majority of the risks.

The potential noncarcinogenic effects associated with the exposure pathways evaluated above were combined in the same manner as was done for the carcinogenic effects to yield total Site HIs. Of the three potentially complete exposure pathways evaluated, ingestion of groundwater contributes most to overall noncarcinogenic health effects.

The noncarcinogenic HIs associated with regional well P-5L are below the target HI level of 1. Conversely, the noncarcinogenic HIs associated with regional well W-4 are slightly above the target HI level and are primarily associated with arsenic. However, as stated above, the concentrations of arsenic observed in well W-4 are below the MCL. The HIs associated with background wells are slightly above the target level and are primarily attributed to manganese A summary of the cumulative noncarcinogenic HIs is provided below.

SUMMARY OF TOTAL NONCARCINOGENIC HAZARD INDEX (REGIONAL AQUIFER)

Flow Unit (Well)	Average HI Adult	RME HI Adult	Average HI Child	RME HI Child
C (P-5L)	0.3	0.4	0.6	0.9
D (W-4)	1	2	3	4
D (background wells)	0.9	1	2	3

The lowest and highest noncarcinogenic HIs associated with wells screened in the shallow zones are 0.4 (P-3S) and 300 (W-6A). Analogous to the carcinogenic risks, the lowest and highest HIs correspond to adult receptors for an average exposure scenario and to children under a RMD exposure scenario, respectively. The ingestion of manganese is the primary chemical and exposure pathway contributing to the overall total HI from well W-6A.

Incremental risks may be estimated by subtracting background carcinogenic risks and noncarcinogenic HIs from the total carcinogenic and noncarcinogenic chemical-and pathways-specific risks. If the incremental risks exceed the target risk ranges, it is possible that these risks are associated with site-related activities rather than ambient conditions. In the case of arsenic, the incremental cancer risks are above the target risk level for the RME ADULT EXPOSURE SCENARIO and the incremental HIs are above the target range for the average and RME child exposure scenario. However, the concentrations of arsenic detected in background wells and well W-4 are below the arsenic MCL of 50 µg/L.

Analytical data from samples obtained during test pumping of Coyote municipal well 12A show that manganese was also detected slightly above the Federal secondary drinking water standard. Given that manganese was detected in samples collected from a crossgradient municipal well, it is possible that manganese detected in onsite groundwater wells in the perched and regional zones is naturally occurring. However, it should be noted that the concentrations of manganese, specifically in well W-6A, are several orders of magnitude greater than the Federal secondary drinking water standard, the levels in Coyote Well 12A, and the three upgradient background wells.

Uncertainty

There are numerous sources of uncertainty associated with the methodologies and data used in this risk assessment that tend to limit the confidence in the resulting quantitative estimates of carcinogenic risks and non-carcinogenic hazards. Uncertainty is unavoidable in quantifying health risks, and many parameters are not well known (toxicity values) or contain significant

variability. Thus, it is expected that the risks are conservative at least to some degree. Therefore, actual risks may be lower than those estimated for both the more probable average and RME cases.

Conclusions

In summary, given the inherent uncertainties, the exposures that are most likely to pose excess carcinogenic risks and noncarcinogenic hazard effects at the McColl Site are those experienced by residential receptors who are exposed to COPCs in groundwater by incidental ingestion. The chemicals that contribute most to these excess carcinogenic risks include arsenic and beryllium in wells screened in the perched aquifer. Arsenic was identified as a COPC in soil samples collected from the Site, whereas beryllium was not. The concentrations of beryllium in groundwater may be attributed to the leachability of naturally-occurring chemicals in the vadose zone due to the low pH in groundwater.

It is unlikely that locally perched groundwater would be classified as a potable source because perched groundwater is not present in sufficient volume to serve as an exclusive source of future water supply. However, it is important to evaluate the potential health risks of perched groundwater because it is possible that some areas of the perched zone are hydraulically connected to the deeper regional aquifer which serves as a potential drinking water source.

Carcinogenic risks associated with wells screened in the deeper regional aquifer are within and are slightly above (RME scenario) the established risk range (1 x 10-4 to 1 x 10-6). In addition, noncarcinogenic hazard effects may occur from groundwater ingestion of chemicals detected in] wells screened in the regional aquifer. However, the concentrations of the risk-driving chemicals in the regional wells are either below the corresponding MCL (arsenic) or appear to be within background levels (manganese).

The potential risks associated with thiophene-based compounds could not be assessed quantitatively because of the lack of EPA-verified toxicity criteria. The odor threshold concentration (OTC) for THT, which is the concentration at which 50 percent of the population can detect an odor, is 0.6 ppb or 0.0018 mg/m3. In comparison to most chemicals, THT can be detected at relatively low concentrations.

VII. DESCRIPTION OF ALTERNATIVES

This section will describe four alternatives that EPA has evaluated in selecting the final cleanup plan for the Site. The four alternatives were evaluated and compared to the nine criteria required by the NCP (40 CFR § 300.430(e)(9)) in the Feasibility Study Report, Groundwater Operable Unit, McColl site (EPA, February 1996). The nine criteria are described in greater detail in Part VIII of this decision document, entitled Summary of Comparative Analysis of Alternatives.

The Draft Feasibility Study (ENVIRON) and the work leading up to the Draft was provided by MSG to EPA. EPA revised portions of the MSG text and finalized the document on February 7, 1996.

The general Remedial Action Objective (RAO) for groundwater at the site is long-term protection of potable groundwater for public health purposes and to ensure its current and future beneficial use as a source of drinking water supply.

A. Alternative #1

The NCP requires that a no-action alternative be considered at every site. The no-action alternative usually serves primarily as a point of comparison to other alternatives; howeve, in this case it was considered. There are no costs, except monitoring, associated with this alternative.

B. Alternative #2

Institutional controls that would limit future use of groundwater in the vicinity of the site would prevent non-natural migration of waste from the perched to the regional aquifer. Under this alternative. EPA or a Responsible Party would negotiate limitations on the use of groundwater beneath the adjacent properties with the owners.

Implementation of offsite institutional controls would require determination of an appropriate PRG for THTs upon which to base the lateral extent of controls required or recommended. EPA recommends 3.6 ppb as the PRG for total THT compounds. This is based on an MSG analysis of domestic use performed during the RI. It is anticipated that affected properties outside the current site property boundaries could include adjacent residential properties along Tiffany and Fairgreen, the golf course property adjacent to the southern boundary, and possibly Island Drive residential properties.

While there are no capital costs associated with this alternative there are costs associated with conducting negotiations and many adjacent property owner may be reluctant to agree to the limitations. the costs of this alternative are estimated at $744,000 to $1,934,000 in addition to the monitoring costs.

C. Alternative #3

This is the alternative selected in this decision document. Modifications to the selected alternative are outline in Section X, Statutory Determinations, Documentation of Significant Changes (page 26). This alternative would include evaluation, design, and construction of infiltration controls to significantly (order of magnitude) reduce surface water infiltration from baseline estimates. Measures/controls for consideration during design may include some or all of the following:

- Onsite management of surface water running onto the site property;
- Lining existing major drainage channels with low permeability materials;
- Grading or modifying (through placement of low permeability soils) areas adjacent to, but outside of the planned closure containment system;
- Groundwater monitoring (including additional wells) to demonstrate that the infiltration controls are effectively preventing further migration of site contaminants to and throughout the regional aquifer; and
- Site maintenance and security until final O&M plans take effect under the source operable unit remedy.

The groundwater remedy (Alternative #3) is intended to work in conjunction with the source remedy, and together will achieve the anticipated goal of protection of groundwater resources.

There would be a capital cost of $744,000 to $1,934,000 for this alternative in addition to the monitoring costs. The likely net present value would range between $2,294,000 and $3,484,000.

D. Alternative #4

This alternative would extract water from the deeper aquifer and treat this water at the site surface. It was assumed that granular activated carbon (GAC) would be used to treat water; however, additional treatability studies would have tobe performed to determine efficacy. The treated water would be reused as irrigation water, discharged to surface water, or reinjected into the groundwater through wells. This alternative would also include groundwater monitoring. The rate of extraction was estimated at 6 gpm and the groundwater would be drawn from existing monitoring wells.

The total estimated capital costs for this alternative range from $1,648,000 to $2,904,000. The annual operation and maintenance costs would be $383,000 plus additional monitoring wells and monitoring. The net present value is estimated to be $5,707,000 to $6,963,000.

VIII. SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES

In the Feasibility Study, alternatives were developed assuming that alternative #3 may include components of #2 and that #4 may include components of #3 and #2. In the presentation of alternatives for comparative purposes each alternative is evaluated based on its own merits.

A. Protection of Human Health and The Environment

Overall protection of human health and the environment addresses whether an alternative provides adequate protection from exposure to contamination and describes how risks for the exposure pathways are eliminated or reduced.

Because there are no current exposure pathways and concentrations of contaminants in the regional aquifer fall within the acceptable risk range, all of the alternatives are sufficiently protective of human health.

B. Compliance With ARARS

The primary applicable or relevant and appropriate requirements (ARARs) that have been identified for the groundwater at the McColl site are the federal MCLs and non-zero Maximum Contaminant Level Goal (MCLGs) as promulgated and applied under the Safe drinking Water Act and State MCLs. Chemical of concern in the regional aquifer either already meet MCLs, have background concentrations above MCLs, or appear as localized occurrences. Chemicals of concern have been detected in perched groundwater at concentration exceeding MCLs. The perched groundwater would provide insufficient yield to be used as a sole source of groundwater and as a result is not considered to be subject to the MCLs as ARARs. It should be noted that the migration of site contaminants (THTs) from the perched to the regional aquifer indicates a possible pathway for future contaminant migration.

For the purpose of comparing alternatives, all of the alternatives generally comply with ARARs, When evaluating relevant environmental law it is important to recognize that the limited contamination of the regional aquifer by THTs affects the secondary water quality standards of taste and odor. Secondary standards are "to be considered" in the evaluation process. In comparing alternatives in light of THT contamination, all of the alternatives, with the exception of the no-action, would serve to prevent further migration of THTs in the regional aquifer.

EPA recommends that all of the interested agencies and parties work to determine an appropriate site-specific concentration for evaluation of THTs. EPA recommends, based on an analysis of domestic use performed during the RI, that a PRG concentration of 3.6 ppb total THTs be used for the five year review in evaluating the effectiveness of the remedy in the regional aquifer.

C. Long-Term Effectiveness and Permanence

Long term effectiveness and permanence refers to the ability of a remedy to maintain reliable protection of human health and the environment over time.

Alternatives 3 and 4 are considered more permanent and effective than alternatives 1 and to a lesser degree 2, due simply to the fact that they would serve to prevent future contamination o the regional aquifer and would therefore be most protective over time. Alternative 3 is considered more effective than Alternative 4 because it would not generate treatment residuals or require constant energy and resources which have secondary environmental effects.

D. Reduction of Toxicity, Mobility, or Volume Through Treatment

Reduction of toxicity, mobility, or volume through treatment refers to the preference for a remedy that uses treatment to reduce health hazards, contaminant migration, or the quantity of contaminants at the site.

While Alternative 4 is the only alternative to consider treatment, the volume of contaminants treated is expected to be very low. The volume of groundwater extracted is estimated at 6 gpm and would contain contaminants in the parts per billion range. The treatment process would generate residuals and require frequent maintenance.

E. Short-Term Effectiveness

Short-term effectiveness refers to the period of time needed to complete the remedy and to prevent adverse impacts on human health and the environment that may be posed during construction and implementation of the remedy. Since a complete health and safety plan would be implemented prior to the construction of the remedies, short-term adverse impacts during construction of the remedies would be minimized.

All of the alternatives could be implemented in a reasonable timeframe. Alternative 4 would likely] take the longest to implement and would have to consider a site-specific remediation goal for THTs. Alternatives 3 and 4 would provide the maximum short-term effectiveness in reducing the THTs in the regional aquifer.

Alternatives 1 and 2 present the minimum short-term impacts of the alternatives considered. Short-term impacts associated with Alternative 3 are limited to the risk posed to workers working with heavy equipment during the construction of the infiltration controls; there are no foreseeable risks to the community. Alternative 4 has some short-term risks for workers and possibly some risks associated with operation of construction equipment in the community.

F. Implementability

Implementability refers to the technical and administrative feasibility of a remedy, including the availability of materials and services needed to implement the selected remedy. It also includes coordination of Federal, State, and local governments during cleanup of the site.

With the exception of the no further action Alternative (#1), Alternative #3 would be the easiest to implement. Alternative #3 can be directly integrated with the construction of the closure and containment system and may not require any complex negotiations regarding institutional controls (Alternative #2) or permits (or coordination) for operation of treatment system (Alternative #4). Alternatives #2 and #4 would also require significant additional community involvement which can complicate the implementation process.

G. Cost

This criterion examines the estimated costs for each remedial alternative. For comparison, capital costs and annual O&M costs are used to calculate a total net present worth cost for each alternative.

Costs between alternatives 1,2 and 3 compare well. All of these three include annual monitoring ($139,000). All alternatives would include at least one additional monitoring well ($146,400), and Alternative #4 would include $77,900 for monitoring of extraction wells. The costs of conducting the negotiations under alternative #2 are not assessed but could be significant. Alternative #4 alone would have total estimated capital costs ranging from $1,648,000 to $2,904,000 annual operation and maintenance costs would be $383,000 plus additional monitoring wells and monitoring, and the net present value is estimated to be $5,707,000 to $6,963,000.

In the Feasibility Study, alternatives were developed assuming that alternative #3 may include components of #2 and that #4 may include components of #3 and #2. In the presentation of alternatives for comparative purposes each alternative is evaluated based on its own merits.

H. State Acceptance

The State of California has commented in support of the remedy selected with the comment that offsite institutional controls should be considered in addition to the infiltration controls. EPA has addressed this concern by requiring that offsite institutional controls be implemented at the five year review in the event that the regional aquifer beyond the current site boundary is found (in more than one offsite well) to contain site-specific contaminants above State or Federal MCLs or the above the recommended or revised PRG for THTs.

I. Community Acceptance

The community has supported the selected remedy during the comment period of the public meeting. No specific written comments were received during the public comment period. The public meeting comments are provided in Attachment B.

IX. SELECTED REMEDY

EPA has selected Alternative #3 as the remedy for the McColl Superfund Site. The selected remedy for contaminated groundwater at the McColl Site consists of:

- Evaluation, design, and construction of infiltration controls to significantly

(order of magnitude) reduce surface water infiltration from baseline estimates. Measures/controls for consideration during design may include some or all of the following:

- Onsite management of surface water running onto the site property.
- Lining existing major drainage channels with low permeability materials.
- Grading or modifying (through placement of low permeability soils) areas adjacent to, but outside of the planned closure containment system.
- Groundwater monitoring to demonstrate that the infiltration controls are effectively preventing further migration of site contaminants to the regional aquifer (in excess of Federal or State MCLs or the site-specific PRG for THTs).
- Institutional controls at the five year review in the event that the regional aquifer beyond the current site boundary is found (in more than one offsite well) to contain site specific contaminants above State or Federal MCLs or above the recommended or revised PRG for THTs.
- Site Maintenance and Security until final O&M plans take effect under the source operable unit remedy.

Implementation of this remedy will prevent the spread of groundwater contamination and reduce the possibility of future contamination of the regional aquifer, thereby reducing any future risk of exposure to contaminated groundwater. These controls will remain in-place in perpetuity along with the closure and containment system. Because the source operable unit remedy does result in hazardous substances remaining on the site above health-based levels, the groundwater remedy five year review shall apply coincident with the source remedy five year review. Based on an estimated construction completion of 1997, the initial five year review will occur in 2002.

The decision to select Alternative 3 as the remedy is based on a comparative analysis of the alternatives presented above and provides the best balance of trade-offs with respect to the nine evaluation criteria.

A long-term groundwater monitoring program shall be implemented to evaluate the effectiveness of the infiltration controls and to demonstrate continued achievement of Federal or State MCLs and the proposed (3.6 ppb) or revised PRG for total THTs.

X. STATUTORY DETERMINATIONS

The selected remedy is protective of human health and the environment as required by Section 121 of CERCLA. The selected remedial action, when complete, shall comply with applicable or relevant and appropriate environmental standards established under Federal and State environmental laws. The selected remedy is cost-effective and considered permanent treatment technologies to the maximum extent practicable. The following sections discuss how the selected remedy for the McColl groundwater contamination operable unit meets these statutory requirements.

A. Protection of Public and the Environment

Prevention of further future degradation of the regional aquifer from site contaminants will protect the aquifer as an important natural resource and prevent any future unacceptable exposures from site contaminants via groundwater usage. The implementation of this remedy will not create any short-term risks to the community nor any negative cross-media impacts.

B. Attainment of ARARs

All ARARs will be met by the selected remedy. The selected remedy will maintain compliance with chemical-specific ARARs by reducing migration of contaminants to the regional aquifer. There are no action specific or location specific ARARs.

C. Cost-Effectiveness

EPA believes the selected remedy is cost-effective and addresses the contaminated groundwater within a reasonable period of time. The selected remedy fulfills the nine criteria of the NCP and provides overall effectiveness in relation to its cost.

Alternative #3 has a capital cost of approximately $744,000 to $1,934,000 and an approximate annual O&M cost of $146,000. The net present value is $2,294,000 to $3,484,000 based on an assumed 20-year project life.

D. Use of Permanent Solutions and Alternative Treatment Technologies or Resource Recovery Technologies to the Maximum Extent Practicable

The primary rationale for selection of Alternative #3, the preferred alternative, is that it provides the best balance of long-term effectiveness versus cost, and it is relatively easy to implement. The selected remedy was evaluated against treatment technologies that were determined to be less cost effective. EPA has determined that the selected remedy provides the best balance of long-term effectiveness and permanence; reduction of toxicity, mobility, and volume through treatment; short-term effectiveness; implementability; and cost effectiveness. The selected remedy has also been accepted by the State and community.

E. Preference for Treatment as a Principal Element

While contaminants in the groundwater will not be extracted and treated, it is important to point out that natural degradation processes will be closely monitored. EPA considered treatment as an alternative in the evaluation process and determined that it was not cost-effective or implementable when compared with the preferred alternative.

F. Documentation of Significant Changes

EPA considered institutional controls as a part of its description of all remedial actions in the GWFS. However, for the purposes of conducting the comparative analysis, in the GWFS, EPA evaluated each remedial alternative individually (versus cumulatively). Accordingly, because the Proposed Plan fact sheet is based on the comparative analysis, it only discussed infiltration controls without institutional controls for Alternative 3.

Consistent with the GWFS, EPA has incorporated institutional controls in the final remedy as a contingency measure for the regional aquifer. Specifically, institutional controls shall be considered at the five year review if the regional aquifer beyond the current site boundary is found (in more than one offsite well)to contain site-specific contaminants above State or Federal MCLs or above the recommended (3.6 ppb) or revised PRG for total THTs. Institutional controls were included primarily to address State concerns.

<IMG SRC 0996154C>

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ATTACHMENT B

MARCH 14, 1996
PUBLIC MEETING COMMENTS

Mr. Felter: I hereby declare the comment period open. Would anyone like to comment on the proposed plan?

Mr Bushey: Yes. My name is Dave Bushey, B-u-s-h-e-y. I live at 1819 Fairgreen Drive in Fullerton. And I agree with your plan as proposed. And I thank you for all your work.

Mr. Felter: Thank you. Do we have any other comments?

Mr. Bennett: Yes. My name is Chuck Bennett, B-e-n-n-e-t-t. I'm a resident of Fullerton and part of the FHCA. I would like to make the comment that the selection of #3 or #1 would have been the fastest alternatives at implementation. And I'm pleased to see that the Agency has chosen one of the prompter remedial plans for the groundwater.

And I think -- my sense of the community is that they are supportive of either #1 or #3 as the choices.

Mr. Felter: Thank you. Yes, sir?

Mr. Siegel: My name is Gene Siegel, S-i-e-g-e-l. I live at 2617 Tiffany Place. Looking over four alternatives, I would agree with EPA that Alternative #3 does make the most sense. From looking at the factors of overall protection, long-term effectiveness, cost effectiveness, and short-term risk, if you look at all four of those factors, they seem to be the best overall of all the alternatives.

Mr. Felter: Thank you. Do I have another comment?

Mr. Olquin: Yes. It's Alex richard Olquin, O-l-q-u-i-n. My address is 1506 Baronet Place, City of Fullerton. I'm a member of FHCA. I agree with Alternative #3.

There is a concern I have regarding down the road that long-term maintenance and monitoring, that diligence is served. And that I would hope that in the issuing of the rod, that an explanation would be made and comments given by US EPA regarding that MSG will stand by and monitor the wells and that we will not have problems hereafter, once the 30-year period is over or maintenance of the cap and implementation of their orders.

Mr. Felter: Thank you. I've just been reminded that several times this evening during this period the initials FHCA have been used. For the record, that stands for the "Fullerton Hills Community Association."

Do I have any other comments?

All right. Well, hearing no others, I officially conclude the official comment period and turn the meeting over to Mike and Brian for general questions. Thank you.

ATTACHMENT C

RESPONSIVENESS SUMMARY FOR THE GROUNDWATER OPERABLE UNIT PROPOSED PLAN MCCOLL SUPERFUND SITE

FULLERTON, CALIFORNIA

May 7, 1996

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Contract No.68-W-9-0059
Work Assignment No. 59-18-9L04

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I. OVERVIEW

On March 6, 1996, the U.S. Environmental Protection Agency (EPA) issued a Proposed Plan stating EPA's preference for the groundwater cleanup alternative for the McColl Superfund Site in Fullerton, California. EPA's preferred remedy is Additional Infiltration Reduction Measures (Alternative #3 presented in the Feasibility Study Report, Groundwater Operble Unit, McColl Superfund Site (EPA, February 1996)). Under this alternative, engineered controls would be used to reduce the infiltration of site surface water and thereby reduce the migration of perched contaminated groundwater to the regional aquifer. The controls could include lining of major drainage channels, reduction in infiltration through grading or placing low permeability materials outside of channels, and onsite management of surface water running onto the site. This alternative also includes long-term groundwater monitoring. A 30-day public comment period followed the issuance of the Proposed Plan. This Responsiveness Summary is a written summary of the comments EPA received during the public comment period and EPA's responses to these comments. After consideration of the public comments and review of the administrative record, EPA has selected Additional Infiltration Reduction Measures. This final remedy is embodied in the Record of Decision (ROD).

All of the community's responses to the Proposed Plan were in favor of the selected remedy, Alternative #3. The oil company PRPs, the McColl Site Group (MSG), support the selection of alternative #3 with some exceptions and comments that are presented in Section 3 of this Responsiveness Summary. The State of California, Department of Toxic Substances Control (DTSC), has commented in support of Alternative #3. The DTSC has some comments on the Proposed Plan that are presented in Section 3 of this Responsiveness Summary.

II. HISTORY OF COMMUNITY INVOLVEMENT

Community members have been involved with the McColl Superfund Site since the beginning of the investigation process. Agencies initiated investigations at the Site as a result of odor and health complaints received from residents beginning in July 1978. Community concern increased gradually through 1980. The efforts of Campaign for Economic Democracy (CED), a statewide consumer and environmental organization, and a speech given to residents by Lois Gibbs, president of the Love Canal Homeowners Association, focused media attention on the Site and heightened community awareness about McColl. due to the increasing community concerns and potential border zone property determinations, the California Department of Health Services (DHS), now the Department of Toxic Substances Control (DTSC), organized a public hearing in the fall of 1980.

Individual members of the community continued to be involved in discussions and decisions related to the Site through 1984, when EPA and DHS announced that the Site would be remediated using the excavation and redisposal alternative. Community comments received at the first public hearing indicated strong community support for this decision. Following the California State Court injunction blocking the State from implementing the remedy, some community members expressed increasing frustration at delays in the cleanup process. This frustration led to the formation of the McColl Action Group. This neighborhood committee participated actively in decisions related to the Site from 1985 through 1991. EPA and DHS were often invited to make presentations to the group. The group subsequently disbanded in 1991. Another community group, the Fullerton Hills Community Association (FHCA), was founded in 1991. This group has had input into site-related decisions.

Elected officials also have expressed interest in the Site, most notably former Congressman Dannemeyer. All elected officials in the area are on the mailing list for the Site, and receive all information related to site activities. Starting in 1986, EPA and DTSC have held regular meetings as part of the Interagency Committee. The committee is comprised of the following agencies: EPA, DTSC, the City of Fullerton, South Coast Air Quality Management District City of Buena Park, Orange County Environmental Health, California Regional Water Quality Control Board, California Department of Health Services' Drinking Water Branch, and California Environmental Protection Agency's Office of Environmental Health Hazard Assessment.

Community participation has focused on the source operable unit, and there has been limited community participation in groundwater issues.

The alternatives considered for protection of groundwater are described in the Proposed Plan

Fact Sheet included in Exhibit A. No written comments from the community were received during the public comment period. All community comments that were made during the Public Meeting held on March 14, 1996 were in support of the selected remedy. Written comments on the Proposed Plan wee received from MSG and DTSC, Both MSG and DTSC support the selection of Alternative #3. EPA has taken community concerns into account in selecting the remedy. EPA believes the selected remedy is protective of human health and the environment, will be completed in a reasonable amount of time with low risk to the community, and is cost-effective.

Throughout the remedial process, EPA and DTSC have continued to conduct a variety of community relations activities. Activities have included public meetings, small group meetings, regular mailing to community members, a toll-free information line, an on-site open house, and regular contact with the media to provide information.

EPA and DTSC will continue to work closely with the community throughout the entire remediation process to keep residents informed of progress at the Site. EPA and DTSC will monitor community interests and concerns, and will conduct community relation activities as needed to address those concerns.

III. SUMMARY OF PUBLIC COMMENTS RECEIVED DURING PUBLIC COMMENT PERIOD AND AGENCY RESPONSES

PART I -SUMMARY AND RESPONSE TO LOCAL COMMUNITY COMMENTS

The local community expressed its support of the proposed remedial action at the public hearing on the proposed plan held on March 14, 1996. No written comments on the proposed plan were received from the community. EPA acknowledges and appreciates the input of the local community.

The public hearing had two components. The first part of the evening was a brief summary of the status of the closure and containment system (source operable unit). There were some questions from the audience, with responses from EPA. Those questions and answers will not be repeated here, but appear in the transcript of the hearing. A copy of the hearing transcript is attached to the Responsiveness Summary as Exhibit B.

The second part of the hearing was devoted to the groundwater proposed plan and was designed to receive public comments on the proposed plan. Four people representing neighborhood residents spoke in support of the proposed plan. Because all comments from the local community were in support of the proposed plan, no EPA responses are given here. As previously stated, no written comments were received from the local community during the public comment period. The public comments are presented as Exhibit C.

PART II - SUMMARY AND RESPONSE TO STATE AND PRP COMMENTS

Written comments on the proposed plan were received from the State of California (DTSC) and the MSG. Both parties support the selection of Alternative #3, with some comments.

A. State of California, Department of Toxic Substances Control

The State of California's comments, dated March 29, 1996, are presented here in their entirety in standard print. EPA responses are in italics. The complete letter is presented in Exhibit D.

The California Department of Toxic Substances Control (DTSC) has reviewed the United States Environmental Protection Agency's (U.S. EPA) Proposed Plan (Plan) for the Ground Water Operable Unit at the McColl hazardous waste site. U.S. EPA issued the Plan on February 27, 1996 in the form of a fact sheet titled "EPA McColl Superfund Site", February 1996.

The DTSC has been given the opportunity to review and provide comments to U.S. EPA on draft and final versions of the various documents U.S. EPA used in developing the Plan. The documents reviewed included those of the remedial investigation, feasibility study (GWFS), and the baseline risk assessment, which were prepared by either U.S. EPA's contractor or the McColl Site Group, the responsible parties. Also reviewed were the applicable or relevant and appropriate requirements (ARARs), and the nine criteria analysis, both of which were included in the GWFS. (A formal alternatives risk assessment document was not prepared). Individuals reviewing the Plan and the various support documents include Dr. William Vance and Dr. David Chan of the Office of Environmental Health Hazard Assessment, Ms. Kathleen Considine of DTSC's Geological

Services Unit and Ms. Caroline Rudolph, DTSC's project manager for the McColl Site.

The DTSC's comments and concerns regarding the Plan are derived from review of the draft and final documents along with that of the Plan. The Department's comments on the Plan are as follows, with Ms. Considine's comments (related to the GWFS) provided as an attachment to further clarify DTSC's primary concern with the presently proposed Plan:

Proposed Plan

Conceptually, U.S. EPA's Plan of infiltration reduction and long-term monitoring appears to be realistic and implementable considering the minimal contamination currently found within the existing monitoring system. The Plan, denoted as Alternative 3 in the fact sheet, does lack an element of the alternative as it was previously described in the GWFS: that of institutional controls. Institutional controls are a means of ensuring the efficiency and integrity of the long-term monitoring system. DTSC recommends that U.S. EPA's final Plan include at a minimum the contingency of placing appropriate institutional controls if data review of the completed long-term monitoring system (i.e., including the additional one or two wells proposed as part of the Plan) indicate that such controls are needed.

Response: EPA agrees that institutional controls should be a part of Alternative #3. The EPA Record of Decision states, "EPA or the relvant state agency will implement institutional controls as a contingency measure. Specifically, if at the five year review the regional aquifer beyond the current site boundary is found (in more than one offsite well) to contain site-specific contaminants above State or Federal Maximum Contaminant Levels (MCLs) or above the recommended (3.6 parts per billion (ppb)) or revisd preliminary remediation goal (PRG) for tetrahydrothiophene (THT) compounds, institutional controls will be implemented."

Ms. Considine's Memorandum:

As requested, I have reviewed the document Feasibility study Report, Groundwater Operable Unit, McColl Site (GWFS), dated February 7, 1996. The GWFS was prepared by ICF Technology Incorporated (ICF) for the United States Environmental Protection Agency (U.S.EPA). The GWFS presents the remedial alternatives for contaminated groundwater at the McColl Site.

CONCLUSIONS & RECOMMENDATIONS

The chosen Remedial Alternative 3 (RA 3) involves source controls, groundwater monitoring, infiltration reduction measures, and institutional controls, according to the discussion on page 6-23 of the GWFS. The GWFS then makes the statement on page 6-41 that " ...Remedial Alternative 3 would be the easiest to implement, in the event that the required area of institutional control is reduced or eliminated with remedial action." The RA 3, as presented to the public makes no mention at all of institutional controls. I strongly recommend that institutional controls be retained as part of RA 3.

The reason why institutional controls should be retained is a follows. The total horizontal and vertical extent of contamination has not been determined off-site in the down-gradient direction. Additional groundwater monitoring wells are proposed to resolve this issue and the area of institutional controls cannot be adequately defined at this time. A reduction in contaminant levels is expected after the source control and infiltration reduction measures are in place. However, since the Orange County groundwater basin is non-adjudicated, without institutional controls there is no control on the possible installation and pumping of a private well(s) in the site vicinity. This could change the groundwater flow direction and gradient and potentially pull more contamination from the site.

Response: As stated above, EPA agrees with the State, and has retained institutional controls in the Record of Decision as a contingency measure. (See page 6-38 of the GWFS which provides that, "While institutional controls are included as part of Remedial Alternative 3, the size of the area where institutional controls may need to be implemented may be significantly reduced or become not necessary.")

B. The McColl Site Group

The MSG's written comments, dated April 5, 1996, are presented in their entirety in Exhibit D. Many of MSG's comments do not pertain to alternative #3 of the Proposed Plan and EPA does not necessarily concur with those comments. However, this Responsiveness summary applies only to Alternative #3 of the Proposed Plan, therefore only those MSG comments that are applicable to Alternative #3 are presented here in standard print. EPA responses are in italics.

The purpose of this letter is to provide the formal comments of the McColl Site Group ("MSG") regarding the Remedial Investigation (RI), Feasibility Study (FS), Risk Assessment (RA), and EPA's Proposed Plan for the Groundwater Operable Unit at the McColl site in Fullerton, California. These comments are prepared in response to the U.S. EPA Public Comment Period which extends to April 5, 1996.

In response to Administrative Order 93-21, MSG has conducted routine groundwater monitoring as part of a groundwater investigation which was begun by EPA in 1989. Based upon that investigation, as well as the Remedial Investigation Report completed by MSG, the Risk Assessment completed by EPA, and the feasibility Study that was initiated by MSG and subsequently completed by EPA, EPA has proposed a remedial action plan which has identified Alternative #3 (described in the Feasibility Study Report) as the preferred alternative. MSG supports the selection of Alternative #3 of the Feasibility Study Report. The following points summarize the results of the overall groundwater program and clarify certain aspects of the proposed alternative that should be reflected in the Record of Decision.

- EPA has raised concerns regarding potential difficulties in negotiating institutional controls with adjacent landowners. However, institutional controls should be considered for the McColl site and the area immediately south of the site within the golf course property where implementation hurdles should not pose a significant problem.

Response: EPA maintains that it may be difficult to negotiate institutional controls in residential areas south of the Ramparts sumps (i.e., along Tiffany and Fairgreen Drive). As previously stated, EPA has retained institutional controls as a contingency measure. At this time, there are insufficient data available to determine whether institutional controls are necessary and, if so, the scope and extent of such controls.

- Completion of the surface remedy, RCRA-equivalent cover, and subsurface barrier wall system will significantly reduce the potential for the sumpls to impact groundwater in the future. Although construction of the surface remedy will provide the primary means of reducing groundwater contaminants, MSG supports the additional infiltration controls described in Alternative #3, with the exception of the use of imported low permeability materials outside of drainage ditches and redirection of surface water running onto the property.

Response: EPA concurs that imported low permeability materials outside of drainage ditches may not be necessary. The groundwater remedy is intended to work in conjunction with the source remedy, and together will achieve the anticipated goal of protection of groundwater resources.

- Continued monitoring and installation of up to two new monitoring wells in the regional aquifer, lining of retention ponds and primary drainage ditches, and reduction of infiltration through surface grading is appropriate for the site. Use of imported low permeability materials outside of drainage ditches and redirection of surface water running onto the property would not provide significant benefits relative to the cost of implementing these actions. Accordingly, use of low permeability materials and redirection of surface water should be eliminated from further consideration in the remedy.

Response: EPA agrees that the use of imported low permeability materials would not provide significant reduction in infiltration relative to the cost of purchase and placement of low permeability materials Redirection of surface water may be addressed by onsite management of surface water running onto the property.

- EPA has chosen to identify Operable Unit #1 for groundwater separately from operable Unit #2 for the surface remedy. However, it is important that the remedial design for operable Unit #1 be integrated into the design for Operable Unit #2. If EPA does not facilitate timely integration of these designed, the cost and schedule for both remedies will be adversely impacted.

Response: EPA agrees that the groundwater remedy is intended to work in conjunction with the source remedy, and together will achieve the anticipated goal of protection of groundwater resources. EPA intends to facilitate integration of these designs.

- Comment #3: Under U.S. EPA's detailed analysis of the remedial alternative "Institutional controls" (Alternative #2), U.S. EPA states that "long term institutional control may be constrained by the priorities of the enforcing agency." U.S. EPA further states in the FS that institutional controls are "potentially difficult to implement in that it involves the often complex subject of water rights and negotiations with private property owners." The administration of limited Institutional Controls is a viable remedial element for both Alternative #3 and for the remedial strategy outlined to address THT compounds described in Appendix A of the FS report. Institutional controls would be useful, for example, to assure that cross-contamination between flow units does not occur due to well construction activities. Institutional controls are expected to be necessary only for the McColl Site and a portion of the Los Coyotes Country Club property. two separate parcels are involved, implementation problems are not anticipated.

Response: EPA maintains that it may be difficult to negotiate institutional controls in residential area south of the Ramparts sumps (i.e., along Tiffany and Fairgreen Drive). EPA agrees that institutional controls should be a part of Alternative #3. The EPA Record of Decision states, "EPA or the relevant state agency will implement institutional controls as a contingency measure. Specifically, if at the five year review the regional aquifer beyond the current site boundary is found (in more than one offsite well) to contain site-specific contaminants above State or Federal Maximum Contaminant Levels (MCLs) or above the recommended (3.6 parts per billion (ppb)) or revised preliminary remediation goal (PRG) for tetrahydrothiophene (THT) compounds, institutional controls will be implemented." At this time, there are insufficient data available for the Los Coyotes Country Club property to determine whether institutional controls are necessary and, if so, the scope and extent of such controls.

- Comment #4: The Fate and Transport Study of THT Compounds (ENVIRON, December 18, 1995) indicates that THT compounds are being degraded, probably as a result of biologically mediated processes. Additionally, the limited infiltration controls proposed in Alternative #3 and the remedial action selected for Operable Unit #1 should effectively isolate the THT compounds within the sump areas from groundwater. Given the degradation of THT compounds in groundwater and the isolation of the sump areas form groundwater, the existing concentrations of THT compounds in groundwater are not likely to be a permanent condition.

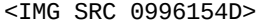
Response: EPA agrees that, at the McColl Site, it appears that THT compounds are degrading as a result of biologically-mediated processes.

EXHIBIT A

PROPOSED PLAN FACT SHEET

EPA McColl Superfund Site

Fullerton, California
February 1996



EPA announces proposed plan for contaminated groundwater at the McColl Superfund Site

The US EPA, in cooperation with the McColl site group (MSG), comprised of shell, Unocal, Arco, and Texaco), has completed the Feasibility study Report for groundwater1 under the McColl site. EPA evaluated four alternatives to address the limted groundwater contamination found under the McColl waste sumps (pits). EPA recommends the following alternative (Alternative 3) which includes:

- Reducing groundwater infiltration by lining major drain Redirecting water running onto the site
- Redirecting water running onto the site
- Reducing infiltration in onsite areas which will be outside the future closure and containment system for the waste sumps
- Adding one or two new monitoring wells to confirm the contaminants generated by the site do not (unreasonably) extend beyond the current monitoring network.

This plan would reduce the possibility of contaminated shallow (not usable) groundwater migrating to the regional (usable) groundwater. Although the regional groundwater beneath the site is not currently used, US EPA and the State of California consider the protection of current and future water supplies essential to the health and welfare of the community.

OPPORTUNITIES FOR PUBLIC INVOLVEMENT

COMMUNITY MEETING

You are invited to attend a community meeting, EPA will present its preferred alternative for addressing groundwater contamination as well as the other alternatives. Questions and comments will also be taken at this time.

DATE: March 14, 1996

TIME: 7:00 pm

PLACE: Parks Junior High
Music Room, Room 126
1710 Rosecrans
Fullerton, CA 92633

PUBLIC COMMENT PERIOD

EPA will begin a 30 day public comment period on March 6th, and requests your comments on the preferred alternative as well as the other groundwater alternatives for the site. Written comments are to be post-marked no later than April 5, 1996, and should be submitted to:

Michael Montgomery
Remedial Project Manager
U.S. EPA
75 Hawthorne Street, mS: H-6-1
San Francisco, CA 94105

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1 Groundwater - Underground water that fills pores in soil or openings in rocks to the point of saturation. Where groundwater occurs in significant quantity, it can be used as a water source.

BACKGROUND

Beneath the McColl waste sumps are a series of tilted or slightly slanted layers of soils and clays. Some of the soil layers are more permeable to water than the clay layers. The McColl site has multiple clay layers with low permeability. These layers retard and spread the contaminated groundwater, preventing it from migrating downward from the perched zones. Perched water refers to a body of groundwater above the main or regional aquifer2.

Water in the regional aquifer, which lies approximaterly 160 to 200 feet below the surface of the ground, stores and transmits more water than the contaminated perched zones. Previous groundwater investigations have found contaminants in several perched groundwater zones beneath the McColl site.

In 1994 the groundwater investigation was expanded to determine if contaminants had migrated beyond the perched zones to the deeper regional aquifer and if the potential exists for the migration of contaminants to the regional aquifer. As part of the investigation, eight new monitoring wells were installed in the fall of 1994 and one well was installed in the summer of 1995. These wells, along with 15 pre-existing wells, form the current network of 24 monitoring wells for the site. These 24 wells

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2 Aquifer - An underground formation of material such as sand or gravel that can store or supply water to wells and springs.

monitor shallow perched zones of groundwater (10 wells) and groundwater in the deeper regional aquifer (14 wells) (see Figure 1 for the location of these wells). The groundwater investigation was completed by MSG.

U.S. EPA recently selected the contingency remedy of closure and containment for the waste sumps. This decision was made in September of 1995 and included significant community involvement.

Since our last Groundwater Fact Sheet (August 1995), EPA has approved the Final Remedial Investigation Report and the Final Feasibility study Report. The following information is a general summary of the findings presented in those documents.

GROUNDWATER INVESTIGATION

Groundwater investigation results indicate that while contaminants are entering the perched groundwater, they do not appear to result in significant contamination of the regional aquifer. Only very low concentration of tetrahydrothiophenes (THTs), which cause the water to taste and smell bad, appear to have reached a limited portion of the regional aquifer.

The perched groundwater is not considered usable because there is not enough water to supply a regularly used well. The regional aquifer is potentially usable although it is not currently used near the site. The City of Fullerton provides municipal water to all residents near the site. Your household tap water is not affected by contaminants in the groundwater under the McColl site. The water supply well nearest to the site is the City of Fullerton's well named "Coyote 12a," which is located approximately 3,000 feet to the southeast of the site.

TABLE 1
PERCHED AND REGIONAL GROUNDWATER ORGANIC ANALYTICAL RESULTS

Contaminants Detected Above Drinking Water Standards

Contaminant (ppb)	Perched Well Maximum Concentration (ppb)	Regional Well Maximum Concentration (ppb)	California Drinking Water Standards (ppb)
Benzene	800 (Well W-6A)	NA	1
1,2-Dichloroethane	2 (Well P-51)	2 (Well P-5L)	0.5
Pollutants That Smell and Taste Bad			
2-Methyltetrahydrothiophene	43,000 (Well-6A)	140 (Well P-5L)	NA
3-Methyltetrahydrothiophene	31,000 (Well-6A)	140 (Well P-10L)	NA
Tetrahydrothiophene	17,000 (Well-6A)	150 (Well P-10L)	NA

NA = Not applicable

ppb - parts per billion; a volume unit of measure.

PERCHED GROUNDWATER

The results of the Remedial Investigation Report confirm the presence of McColl site contaminants in the perched groundwater zones which underlie the site. Organic (carbone-based) contaminants include benzene, ethylbenzene, toluene, 1,2-dicholoroethane (1,2-DCA), 2-hexanone, total xylenes, phenol, and pyrene.

Other McColl site organic contaminants called THTs have migrated from the site to the perched groundwater. Most residents recall from field tests conducted last year the pungent smell of THTs, which can be detected by the human nose at concentrations as low as one part per billion. These contaminants, while not a concern based on available toxicological data, can render water unusable by making it taste and smell bad. (See Table 1 for concentrations detected).

In addition, inorganic contaminants are found in the perched water immediately downgradient of the sumps. These inorganics (also known as metals) are most likely a result of the acidic water from the waste sumps drawing, or "leaching", the metals out of the native soils below the sumps. The impact of these metals is likely to be limited to the area directly beneath the waste sumps and is not likely to pose a significant threat to the regional aquifer.

REGIONAL AQUIFER

McColl site contaminants (excluding the THTs) are not present in the usable portion of the regional aquifer. some THTs may have reached the upper (usable) portions of the regional aquifer and additional monitoring wells will be installed to confirm the limited extent of the THT contamination (see Table 1).

PUBLIC HEALTH RISK ASSESSMENT

EPA completed an evaluation of the public health risks associated with the perched and regional groundwater. Perched groundwater falls within the range of risks that warrant EPA action. The majority of the calculated risk assiciated with the perched water is a result of the inorganics, which occur as a result of the acidic nature of the McColl waste.

The regional groundwater presents a much lower risk than the perched groundwater. EPA decided to go forward with the Feasibility Study, due to the concerns associated with:

- The risks calculated for the perched water
- The possibility of exceeding state or federal drinking water standards in the regional aquifer in the future
- The possibility of exceeding water quality standards for taste and odor in the regional aquifer.

FEASIBILITY STUDY

The purpose of the McColl Groundwater Feasibility Study was to develop and screen potential cleanup alternatives based on the type and extent of contamination found during the investigation. A range of four alternatives was considered to address perched and regional groundwater contamination.

Each alternative was developed to meet the general objectives of:

- Reducing the potential generation and migration of McColl waste constituents in the shallower perched water beneath the site at levels which could migrate and cause an unacceptable risk in the regional groundwater

- Preventing human exposure to all contaminants at concentrations that could pose a health concern, and reduce the potential beneficial use of regional groundwater

The four alternatives were evaluated in the Feasibility Study against nine criteria (see Figure 2). EPA performed a comparative analysis of the four alternatives using the results of each individual criterion. The alternatives and a summary of the detailed analysis are described below and presented in the table.

ALTERNATIVES CONSIDERED

Alternative #1: NO-ACTION

EPA considered the no-action alternative. The no-action alternative would include the present level of groundwater monitoring but would otherwise take no action.

The no-action alternative would meet the criteria of not exceeding drinking water standards and being protective of public health, based on the current data, and assuming the perched groundwater is not usable. The no-action alternative is easy to implement. No significant difficulties are anticipated in constructing or implementing the groundwater monitoring system associated with this alternative. Alternative 1 is relatively inexpensive but would not be as effective as other option in assuring that the regional aquifer is protected from site contaminants. The cost for the no-action alternative would be $1.5 million based on 20 years of groundwater monitoring.

Alternative #2: INSTITUTIONAL CONTROLS

Institutional controls would preclude the use of groundwater beneath the site for drinking water supply purposes. This alternative relies upon successful negotiations for water rights with property owners adjacent to the site and would include groundwater monitoring. The goal of these controls would be to prevent the migration of perched contaminated groundwater into the regional aquifer that could result from access through wells in the regional or perched aquifer (not addressed by the no-action alternative).

This alternative would meet the criteria of not exceeding drinking water standards and being protective of public health, assuming the perched groundwater is not usable. The long-term effectiveness of this alternative is limited as it is based on water rights agreements with property owners. Since the outcome of negotiations cannot be predicted, it is difficult to estimate if the alternative is easy to implement. There are also regulatory agency concerns on whether any future institutional controls could actually be enforced. It is also difficult to estimate the costs of this alternative. However, it would be more expensive than the no-action alternative ($1.5 million) and could cost more than Alternative #3.

Alternative #3: ADDITIONAL INFILTRATION REDUCTION MEASURES

Alternative #3 would include engineered controls that would reduce the infiltration of surface water and thereby reduce the migration of perched contaminated groundwater to the regional aquifer. This reduction would include lining of drainage channels, reduction of infiltration through grading or

placing low permeability materials outside of channels, redirection of surface water running onto the property and groundwater monitoring.

This is EPA's preferred alternative. It is more permanent and effective than alernatives #1 and #2 because it would reduce risk associated with the perched groundwater and the possibility of shallow contaminated water migrating to the regional aquifer through natural or man-made pathways. In addition, Alternative #3 would be simpler to implement because it can be designed and constructed in conjunction with the planned waste pit closure and containment system. It is a more cost effective alternative when compared to the extraction and

treatment option. The cost for this alternative, based on an estimate of 20 years of operation, is $2 to $3 million.

Alternative #4 EXTRACTION AND TREATMENT

Alternative #4 would extract water from the deeper aquifer and treat this water at the site surface. The treated water would be reused (e.g., as irrigation water), discharged to the sewer system, discharged to surface water via storm drain systems, or reinjected into the ground through wells. This alternative would also include groundwater monitoring.

This alternative, although effective, would produce residuals from the treatment system and would be more difficult to implement than other alternatives. Alternative #4 is the most costly of the alternatives and would take the longest to implement. While Alternative #4 would treat the extracted water, the volume of treated material is expected to be small as would the overall reduction of contamination in groundwater. The cost for this alternative is $5 to $7 million, based on 20 years of operation.

Figure 2
SELECTING A CLEAN-UP REMEDY

The US. EPA uses nine criteria to evaluate alternatives for cleaning up a hazardous waste site. The nine criteria are as follows:

<IMG SRC 0996154F>

1) Overall Protection of human Health and the Environment

Addresses whether a remedy provides adequate protection of human health and the environment and describes how risks are eliminated, reduced, or controlled through treatment, engineering controls, or institutional controls.

2) Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)

Addresses whether a remedy will met all ARARs or federal and state environmental statutes and/or provide grounds for invoking a waiver.

<IMG SRC 0996154G>

3) Long-term Effectiveness

Refers to the ability of a remedy to maintain reliable protection of human health and the environment over time, once clean-up goals have been met.

4) Reduction of Toxicity, Mobility, and Volume and Treatment

Refers to the anticipated ability of a remedy to reduce the toxicity, mobility, and volume of the hazardous components present at the site.

5) Cost

Evaluates the estimated capital and operation and maintenance costs of each alternative.

6) Short-term Effectiveness

Addresses the period of time needed to complete the remedy, and any adverse impacts on human health and the environment that may be posed during the construction and implementation period, until the clean-up goals are achieved.

7) Implementability

Refers to the technical and administrative feasibility of a remedy, including the availability of materials and services needed to carry out a particular option.

8) State Acceptance

Indicates whether, based on its review of the information, the state concurs with, opposes, or has no comment on the preferred alternative.

9) Community Acceptance

Indicates whether community concerns are addressed by the remedy and whether the community has a preference for a remedy. Although public comment is an important part of the final decision, EPA is compelled by law to balance community concerns with all of the previously mentioned criteria.

For More Information

Documents for the McColl Superfund Site are located in the information repository at:

Fullerton Public Library
Local History Room
353 W. Commonwealth Avenue
Fullerton, CA 92633
(714) 738-6333

Hours:

Monday - Thursday	10 am - 9 pm
Friday	10 am - 6 pm
Saturday	10 am - 5 pm
	Closed

If you have questions about the Superfund cleanup at McColl, please call or write EPA's Community Relations Coordinator for the site:

Fraser Felter, Community Relations Coordinator
U.S. EPA, Region 9
75 Hawthorne Street (H-1-1)
San Francisco, CA 94105
(415) 744-2181

You may also call EPA's toll-free Superfund hotline and leave a message. Your call will be returned. The hotline number is: (800) 231-3075

Important McColl Superfund Site Telephone Numbers

McColl Security Office	(714) 523-5310
California EPA Public Participation Section	(916) 445-9543
U.S. EPA Media Contact: Paula Bruin	(415) 744-1587

United States Environmental Protection Agency
Region 9
75 Hawthorne Street (H-1-1)
San Francisco, CA 94105
Attn: Fraser Felter

PRESORTED
FIRST CLASS MAIL
U.S. POSTAGE PAID
U.S. EPA
Permit No. G-35

Official Business
Penalty for Private Use,
$300

EXHIBIT B

MARCH 14, 1996
PUBLIC MEETING TRANSCRIPT

McCOLL SUPERFUND SITE

GROUNDWATER PROPOSED PLAN

Date: Thursday, March 14, 1996

Commenced at: 7:10 p.m.

Concluded at: 8:20 p.m.

Place: Parks Junior High
Music room, Room 126
1710 Rosecrans
Fullerton, CA 92633

Reporter: Elizabeth Volz

APPEARANCES

MIKE MONTGOMERY, Team Leader, US EPA

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MR.MONTGOMERY: Can I ask folks to sit down please. We are going to get started.

Let's see if I can get some people to sit down here. We are going to get started, it's about 7:10 and we're starting at 7:00 o'clock. Which means, that we started ten minutes ago.

We are going to dim the lights so everybody can fall asleep. Hopefully, people won't fall asleep. And I think we will be able to run this meeting pretty quickly. Hopefully, we'll get done fairly quickly. I'll try to keep my comments brief.

The agenda, I'm going to go through a quick introduction, sort of give some recent background on the site.

My name is Mike Montgomery, by the way. I'm a Team Leader and a Project Manager for the McColl Site Team. I've been working on the McColl site project now for a little over two years. And I'll do some introductions.

Actually, if you could now raise your hands because it's dark. I'll just do it real quick: Fraser Felter with Community Relations; Al Hendricker with Shell; Brian Swarthout is the other US EPA Project Manager

that will be presenting tonight; Linda Lequire is in the third row, she's from Congressman Royce's office; and Mr. McAuley here from the McAuley LCX Corporation, owner of the golf course; and Caroline Rudolph with the State of California; and some other folks that work with her that you may be familiar, Bill Vance, Steve Gaytan.

Okay. So with that, we'll get started with the introduction. I'm going to go over some recent history. Brian is going to talk briefly about the closure--status of the closure and containment system design. I'm going to go through a brief description of EPA's proposed plan for the groundwater contamination, and talk about the alternatives that we considered.

And then we're going to have a brief period that's required by regulation that we allow people the opportunity to comment on our proposed plan. And when we get to that, if people could state their name and make their comment with regards to what they think about our plan for the groundwater contamination. And we'll have a period for general questions after that for people that had general questions.

We'll also have a short period after Brian's talk on the status of the closure and construction for people that have questions about that. But we may have to cut that short, so that we can get on through the whole

agenda. But I think that we will probably be able to get through this fairly quickly. We have a small group tonight and a lot of people who are familiar and know a lot about the site already, so we won't have to do a lot of background.

Recent history on the McColl site:

Everybody is familiar with back in September we made a decision to go directly to the construction of a closure and containment system for the waste pits at the McColl site. Shortly after that decision we amended our Enforcement Order with the McColl Site Group, which is a collection of oil companies that EPA has performing the work, and we will -- in the process of amending that order, they have been now performing the design for that closure and containment system. And Brian will talk a little bit more about that.

We also have sent a letter to a part of the government that has been found by the courts to be involved with the disposal at the site. It happened during the war years, World War II. And we've recently sent a letter to both the McColl Site Group companies and the government to ask them to come to the table and participate in negotiations with EPA for the actual construction and the long-term maintenance of that closure and containment system for the sumps.

We've gotten responses back from both groups, and we're in the process of considering how to proceed, whether or not to do the negotiations, or whether or not to use the Order Authority that we've used to do the work up to the current date, and do the construction and the maintenance under that.

We should have some information out to the community in the next month or two as to how we are going to proceed on that front. We're also in the process of finalizing an agreement with the McAuley LCX Corporation, the owners of the golf course, to release them from liability at the site.

And we've received comments from the McColl Site Group on that agreement. And we've also received responses from the McAuley LCX counsel responding to comments that were raised by the oil companies. We're in the process of considering both of those and deciding how to move forward on that agreement between the US Government and McAuley LCX Corporation.

So that's a brief summary of what's been happening recently. In terms of various talks, there has also been support for an action towards having Orange County put the Ramparts portion of the property up for sale. And if there are any questions during the general comments or question period, we might have Linda--she's

been working on that. Linda, if you wouldn't mind answering questions with regards tothe status of the sale on the Ramparts property. And EPA has been providing letters to the country to assure tham of the various things and the status of that transfer.

So with that, Brian, why don't you come up and give your talk on the closure and containment system?

MR. SWARTHOUT: okay. As Mike said, my name is Brian Swarthout. I work for US EPA. And I'm the Project Manager for the closure system operable unit or the source-operable unit. I'm just going to be giving a quick overview of the status of what's going on with the closure system. As Mike said, I'll also be taking a few questions.

We want to keep the questions kind of short, because the purpose of the meeting is for the groundwater proposed plan. We will be here after the meeting to answer more questions. And we'll be having additional meetings at a later date in the coming months to talk specifically about the closure system and what's -- I guess just further meetings for the status of the closure system.

I want to say that we're very happy because the schedule -- or the design for the closure system is currently on schedule. In fact, we received the

conceptual design from the McColl Site Group or the oil companies on March 4th. And we are currently working on commenting on that design.

The draft conceptual design contains two components. The first component is a cap. And the cap is going to be --there will be two separate caps. One cap will be over the Los Coyotes area. It's shown here in the pink (Slide #2). The second cap will be here over at the Ramparts area (Slide #2).

The cap in the Los Coyotes area is going to be approximately--excuse me, approximately five feet thick. The cap in the Ramparts area is going to be a lighter cap. It's going to be approximately three feet thick. This cap is significantly thinner than caps that were proposed in the past. As a result, we won't have to be constructing any retaining walls adjacent to or along this area adjacent to the homes in the Ramparts area.

MR FELTER: Brian, may I interrupt for a moment?

Should someone in the audience be a little concerned if their house is not shown on the may?

MR. SWARTHOUT: Right. This was brought up earlier. This figure obviously--well, not obviously. But this figure is an earlier figure that we used. It's just kind of a generalized schematic. But you can see that there are some houses missing here (indicating) and

some houses missing here (indicating). That is just because this is an earlier figure.

There was no intention to leave those houses off for any particular reason or that the houses will all have to be removed or anything like that. Those were just left off from an earlier figure. And all the subsequent figures, and the more detailed figures, actually show this area and those houses are in place.

So as I said, there are going to be two caps: One in the Los Coyotes area, one in the Ramparts area. Another component of the caps will also be a gas-collection system. So this gas-collection system will be constructed under the cap and will be used for the collection and treatment of the gases that come from the sumps.

The second component of the closure system is a soil bentonite slurry wall. And bentonite--what that basically means is they are going to be mixing soil with bentonite, which bentonite is a type of clay. And this will cause the slurry wall to have a low permeability, and it will be used for containing gas and the waste at the site.

And there will be two slurry walls or soil bentonite slurry walls. One is -- they're shown here with the red lines (Slide #2). So there will be one all the

way around the Los Coyotes area, and one slurry wall all the way around the Ramparts area.

The slurry walls will be constructed under the ground surface. So when the construction is complete, the slurry wall will be flush with the ground surface. The will bot be sticking up above the ground surface. The slurry walls will be approximately anywhere from 19 to 39 feet below the ground surface.

And the reason that we chose this particular closure system, the cap in conjunction with the slurry wall was that: One, this system will be good for keeping waste and gas inside the sumps. And it will also be good for keeping water out of the sumps. And Mike will talk a little bit about that with the groundwater--with the groundwater portion.

As I said, we're currently reviewng the conceptual design. Our comments are due to the McColl Site Group on April 1st. And the design will actually be finalized on December. December 4th of this year. And soon thereafter construction will begin at the site.

As part of the construction, we will probably--or MSG will require access to the backyards of some of the houses that are in this area that are directly adjacent to the site. In addition, MSG will be also offering some of the residents in this area or the

residents in this area (indicating), temporary, voluntary relocation as part of the construction. The other thing that I was going to talk about tonight is the compatibility studies that are going on. Currently, MSG is performing a series of compatibility studies. And the compatibility studies are going to be used to test the compatibility of the waste that is currently at the site with--to test the compatibility of waste with the materials that are going to be used as part of the closure system. This is the slurry walls, the sand, the liner--there's going to be a plastic liner that's going to be used as part of the cap. Those tests will be testing the compatibility of the waste with those components. And we will be receiving the results of those tests from MSG in July of this year. So that's one of the current things that is going on at this time.

So at that, I'll take a few questions and then we'll move on.

UNIDENTIFIED SPEAKER: why is there a difference in the thickness in the two caps?

MR. SWARTHOUT: The cap in the Los Coyotes area is thicker so that it can accommodate the golf course. The cap in the Ramparts area is thinner because there won't be a need for the golf course. The final vegetative layer

won't need to be as thick. And also, there is a lot of drilling mud in the lower Ramparts area which won't accommodate a thicker cap. But primarily it's for the golf course.

UNIDENTIFIED SPEAKER: What is the depth of the benzene contamination plume?

MR. SWARTHOUT: okay. Mike is going to talk specifically about the groundwater plume and the groundwater contamination during the rest of the meeting, so he can address that question. So are there any other questions?

Then I'll just turn it over to Mike. Turn the mike over to Mike.

MR. MONTGOMERY: That question is actually an excellent segue into what I'm going to talk about, which is in the culmination of the 15 years of placing and monitoring wells, and monitoring water quality data at the McColl site, and what we've learned over the number of years. And most important. most recently with the placement of a number of additional wells off site, is that there doesn't appear to be a significant amount of groundwater contamination at the McColl site.

It's important, also, for people to understand that the water that you receive in your home comes from a municipal water system which is served by

wells which are not in the vicinity of the site. In fact, there are not a lot of -- the nearest municipal well is quite a distance, and it's actually cross gradient from the site.

I want to talk about gradient, it's the direction the groundwater flows. And the arrows here indicate the direction that the groundwater flows (Slide #3). And the nearest municipal well is about a quarter of a mile over this way (indicating) or 3000 feet this way (indicating). So it's important that people recognize that this is not -- immediately in the adjacent area there are not any municipal wells.

The groundwater contamination at the McColl site -- you can see here that 26 wells have been placed over the years. And we've monitored some of these wells historically back into the 80s. Some of them have just been recently placed at this site.

Our understanding of the site, our conceptual understanding of the site -- and, Brian, can you flip to the next one over here on the left, looks kind of like this. You know, what we've done over the last recent few yers is we put in a lot more wells and we've done a lot of borings.

And over there against the wall are some of the actual drawings that were done by hydrologists working

for the McColl Site Group that show the detailed layers of these low permeability clays where the water that comes through the site sort of hangs out on top of it. We call it "perched water." It's not down in this deeper regional aquifer, which is about 200 feet down.

And what we found, in general, is that this "perched water" which comes from the area around the sumps is contaminated. And it's, you know -- it's got benzene and DCA (1,2-Dichloroethan). So this shows the perched water quality data (Slide #5). If you can read that, you have better sight than i do.

This shows the regional water quality data (Slide #5). And, generally, what you see is that in areas in perched water, for these compounds, which would be of a concern, if you were to drink it for your whole life, they exceed these drinking water standards. You don't generally see those in regional wells. This DCA doesn't exceed the drinking water standards in this case.

But what we found is that DCA is generally not found at the site. That was an exception. And what we are showing here is the highest concentrations that we found. We have got reams of data that shows that there has been no contaminants detected in that regional aquifer for a number of wells.

Now, what we do see is that we have fairly

high concentrations of those Tetrahydrothiophenes, which everybody is familiar with, not only because it's the longest sounding chemical but because it smells really bad. And everybody is familiar with it because it's the smell that you smell when you smell the McColl site, for those of you that live in the neighborhood. And it's generally these compounds.

And what we have found is that the tetrahydrothiophenes have actually reached the regional aquifer in some wells. Ther're not in other wells. And so what we -- you know, generally, all the water quality data tells us is that we have got shallow contamination. But this regional aquifer hasn't been affected by the site, with the exception of a few areas where we have these compounds which would make the water taste or smell bad

And so with that information, we went forward and developed a feasibility study. We looked at different options for how we can assure that this regional aquifer stays clean. That's really the Agency's objective.

So we considered four alternatives. And these are all fairly simple, straightforward alternatives relative to the very large and complex alternatives that were considered in the past on the sumps themselves.

And this is just for addressing that groundwater contamination.

The first one is no further action. And if we did that, we'd basically just continue to monitor the situation.

And the next one is institutional controls. When we do monitoring and we ask for those properties that are adjacent to the site, but off of the site, that may have contamination in that regional aquifer, we would go to them and negotiate agreements and restrictions on the use of their water. and that would be basically a way to assure that that water didn't get used -- that regional groundwater didn't get used.

Alternative #3, which is the alternative that we're proposing, is long-term monitoring of the wells and a reduction of infiltration of site surface water in order to reduce concentrations of contaminants in the perched water, and therefore to protect that regional aquifer from future contamination.

so what we're really concerned about is that there is not a lot of risks posed by the site. You know, right now we don't have a big plume of contamination in that regional aquifer. So from our perspective, the best thing we can do is try to prevent the situation from getting any worse, which we don't expect that it would.

But, you know, we look at this alternative, and I'll get into it a little bit later, it's a cost-effective, preventative measure to assure that we protect that regional aquifer

Alternative #4 is groundwater extraction and treatment. A really common way to address groundwater contamination is groundwater extraction and treatment systems. That would involve groundwater monitoring. But we would also hook up some of these monitoring wells with permanent pumps.

We'd have to dig trenches and pump the water back to the site. We would build a small treatment unit, and we'd treat that water in that treatment unit and discharge it to the city sewer system or to a pond or something like that.

The amount of water that would be extracted would be very small, because we don't have a large area of contamination that we would want to draw out of the ground. The volume would be about six gallons per minute, a little bit more or less. And your garden hose on full blast is about four gallons, four to five gallons per minute. so think of it as a little bit more water than your garden hose can produce on a full stream.

Can I get the other slide over here?

So what we did, to go through this fairly

quickly, and I know this looks like a pretty tedious chart, and it can be a pretty tedious analysis system. And most of you know the nine criteria because you've been drug through the nine criteria a couple of times (Slide #7).

These two, "State Acceptance" and "Community Acceptance." this is really why we're out here talking to you. We are going through a formal public comment period to hear what people think about these alternatives.

State Acceptance, Caroline's here, they have also been intimately involved in the process. Feel free to comment if you want to ask them about their feelings about the current proposed plan that EPA has

I'll go through these real quickly. Overall protection of human health and the environment and compliance with ARARs. You can kind of group these together. And, because we don't have significant contamination in that regional aquifer there's really not a big concern in terms of protection of public health.

In terms of compliance with ARARs, because we haven't exceeded the federal drinking water standards, with the exception of that one data point, which we showed, there doesn't appear to be an exceedence of any federal drinking or State drinking water standards in that regional aquifer either.

Now, granted we do have the shallow contamination. But those lenses of water occur in very thin lenses. If you were to put a well in there, you wouldn't be able to pump enough water to use those shallow perched contaminated units. And so therefore, that's not really a significant concern of the Agency.

What we're concerned about is this regional aquifer which people use down in the groundwater basin and which someone might want to use in the future. So there is not a lot of difference between these alternatives with regards to those two criteria. Long-term effectiveness is where you begin to see some differences between alternatives

The no-action alternative, you wouldn't really do anything. So you wouldn't have any real long-term effectiveness realized. Alternative #2, it would provide some long-term effectiveness in that you would assure, by negotiating these agreements, that nobody would be using this water in the future.

We see Alternative #3 as having a fairly high long-term effectiveness because you are going to put these controls in. And over time they would serve to reduce the concentrations of contaminants in that perched aquifer. And over time they would prevent contaminants from spreading to the regional aquifer if that were to

occur.
Also, with Remedial Alternative #4, that would have a fairly high result too. That "Reduction of Toxicity, Mobility, & Volume," that's sort of how much of this stuff are you really going to treat? How much of these chemicals are you going to reduce and eliminate?
None of the alternatives, none of these first three consider any treatment. Alternative #4 does consider treatment. But you have to consider that it's a very small amount of water that we're treating. And then the water that we're treating has very low concentrations of contaminants.
So you could operate that extraction treatment system for years and really only effectively treat a couple of pounds of chemicals. Which you have got to ask yourself when we get into the cost-effectiveness standpoint, "Is it really worth all that effort?"
Minimization of short-term -- cost effectiveness, I almost jumped over it. Cost effectiveness, Alternative #1, doing nothing, is real cheap.
Remedial Alternative #2 is very difficult to gauge how expensive that could be. Negotiating these agreements with adjacent properties could be complex; it could be very simple. It's kind of hard to gauge.

Putting restrictions on properties, some people might say, "Well, it's no big deal. I'm not going to use the water. I have got city water." It may be a bigger deal to other folks.
Cost effectiveness in terms of Remedial Alternative #3, it's going to be relatively cheap. Alternative #1 is about $1.5 million for monitoring. Alternative #2 is about maybe $2 to $3 million. Alternative #3 is about $2 to $3 million. Alternative #4 is about $5 to $7 million. So #4 is quite a bit more expensive that #2 and #3. because all of them include monitoring
Really, Remedial Alternative #2 is kind of hard to gauge because you don't know how much money you are going to spend on legal fees and doing the negotiations.
Alternative $3 roughly comes out to somewhere between three-quarters to half a million dollars of actual construction costs. The balance of it is monitoring. and so what we are really proposing is, in fact, something that's going to cost potentially less than a $1 million and. yet, it could result in some long-term benefit in terms of reducing the amount of contaminants that could go to the regional aquifer.
So I think from a cost-effectiveness

standpoint when you consider these two together, that's really why we have selected Remedial Alternative #3.

Short-term risk. None of these alternatives would pose any risk to the community. What you see reflected here is risk to workers, the workers that you are going to have digging trenches and using large equipment.

One advantage of Remedial Alternative #3 is that we are going to be working way outside the sumps. We are going to be working in that drainage area over behind Los Coyotes. You can't even really see it from the residences along Tiffany or Fairgreen.

Lining that drainage area, since that is a low-lying area where a lot of water ponds and settles during high precipitation events would reduce infiltration of water into the subsurface in the areas outside of the cap such as that drainage area, and if it's necessary in areas that are not low-lying areas. But I think we will be able to effectively do it just be addressing those low-lying areas.

And, then, there's really more short-term risk associated with #4. You are going to have people constantly going out to the site dealing with the treatment system. You are going to have to lay piping and do trenching. some of that trenching and piping may have

to go out into the streets along Fairgreen or on to the golf course. so you are going to have, at least, the interaction of workers and the community, which can sometimes causes hard feelings. For instance, it can be a nuisance to the residents to have trucks out in their neighborhood parked in front of their house. And that would come with this Remedial Alternative #4.

Implementablity. Again, Alternative #1, the monitoring, would be fairly easy.

Alternative #2, doing these negotiations, deciding who you talk to, who you don't, could be a little bit complex. We're not really sure what to do if people don't agree to restrictions on the use of the water.

Remedial Alternative #3 would be really easy to implement. We could take these plans to reduce infiltration, integrate them right into the design that Brian talked about, and do the construction at the same time. And so this work could be performed in conjunction with the design and the construction of the closure and containment system. Which from an implementability standpoint would be real easy for us to do. And it would get it done fairly quickly, as quickly as other source work would be done.

Remedial Alternative #4, implementability, we'd have to get permits. We'd have to site the treatment

system. We'd have to get permits for the water that we treat. We'd have to dig the trenches. It's fairly complex to do it relative to these other alternatives. It's easy to do; EPA has build extraction and treatment systems. and so have the McColl Site Group partners at different sites. But relative to the other alternatives it's not quite as easy.

That's it. That's the overview. so, again Remedial Alternative #3 here is our preferred alternative. One thing that we recognize is that there may be some need to incorporate some institutional controls further down the line if, in fact, this didn't seem to be effective.

However, we sort of separated these our. So when you comment, please feel free to comment on any of these or any combination of these that you feel may be an effective option for the site.

We've talked about them individually, but they can be combined. And if there's any specific questions about combining them -- yeah?

UNIDENTIFIED SPEAKER: why is there no option for bioremediation?

MR. MONTGOMERY: I'll repeat the question. The question is : Why is there no option for removal and bioremediation?

UNIDENTIFIED SPEAKER: Removal and bioremediation.

MR. MONTGOMERY: As an in-situ technology or as an ex-situ treatment system?

UNIDENTIFIED SPEAKER: Either-or.

MR. MONTGOMERY: okay. Well, we haven't really decided if we were to do the extraction and treatment system, what type of treatment would work best. So I think that we've talked about various options for a type of treatment system once you get the water up to the surface of the site.

UNIDENTIFIED SPEAKER: I mean, the material itself is relatively close to the surface, isn't it?

UNIDENTIFIED SPEAKER: Oh, you are talking about for the sumps, not for the groundwater?

UNIDENTIFIED SPEAKER: Well, that's -- I'm talking about getting to the groundwater too as part of it. getting to the groundwater too as part of it.

MR. MONTGOMERY; For the source.

UNIDENTIFIED SPEAKER: It's a long-term way to get rid of the waste.

MR. MONTGOMERY: For the waste pits themselves. One of the reasons why we haven't considered bioremediation is that this is a sulfuric acid waste. It's a very low pH waste. And you would have to effectively neutralize it before you could bioremediate it. Because in general, the pH of this waste is

fairly low. it's very acidic. And you would have to go through a neutralization -- well, first you would have to excavate it.

We did a trial excavation at the site a number of years ago. we found that excavating this waste is very difficult to do. At a minimum, you have to do it inside of an enclosure. And the time required to excavate all the waste inside of an enclosure involves a lot of time and a lot of money.

And I think that the residents who live near the site also felt very strongly about the excavation and enclosure at the time that we were considering it. So there's a number of steps to consider in these processes. You know, bioremediation would be a very good technology if, in fact, excavation were simpler for the sumps themselves -- were simpler and more cost effective, and then the subsequent neutralization of that prior to the bioremediation were, in fact, easy and effective and cost effective.

And so -- I mean, that's just my cut on those technologies and how they would or would not be applied to the sources shown. We've already decided on a remedy for the sumps themselves, and that's a closure and containment system.

MS. GILMOR: Can we get people's names, also, if

you are giving a formal comment.

MR. MONTGOMERY: Well, right now we're not really in the formal comment portion for the groundwater. As soon as we get these questions out, if they are clarification questions, then we'll stop and we'll have the formal comment period. Fraser has a mike and he'll walk around and people can comment. And I'll sit down, because you are not really addressing your comments to me; you are addressing them to the recorder.

UNIDENTIFIED SPEAKER: Do you have any idea when you will start -- and use your imagination, any idea at all when you think this whole project will be completed?

MR. MONTGOMERY: Brian, do you want me to go ahead and answer that, the construction?

MR. SWARTHOUT: Sure.

MR MONTGOMERY: The construction of the closure and containment system should start sometime early next year. so January, February, March. The design will be completed in December. And that construction is scheduled to take anywhere from ten months to a year, maybe a little bit more than a year. So, roughly, two years.

UNIDENTIFIED SPEAKER: It could be completed in two years?

MR. MONTGOMERY: Done.

UNIDENTIFIED SPEAKER: You were talking about...

MR. MONTGOMERY: With some additional stuff. Like I think, with the golf course, it may take some additional time to do the landscaping and to sod it.

UNIDENTIFIED SPEAKER: That's cosmetic.

UNIDENTIFIED SPEAKER: You were talking about permits and things of that nature and getting approvals. EPA is the government, if you can't get permits, then nobody can get permits.

MR. MONTOGOMERY: There are other governments. I think if you talk to any local businessman in Orange County they'll probably tell you there are too many government regulations. But you are basically correct.

UNIDENTIFIED SPEAKER; Let's be done with this. This has been going on for over 15 years.

MR. MONTGOMERY: Right. We see that as an advantage to our option in that we wouldn't have to get any permits to do this.

UNIDENTIFIED SPEAKER: Good

MR. MONTGOMERY: But if you are going to discharge water, we don't actually have to get a permit, but we might ask the oil companies to get a permit from the local Regional Water Quality Control Board just so that the Regional Board knows that if we were to do an extraction option, that they would know that we were pumping water into a creek or something like that.

But, you know, we can under Superfund authority not get permits. We have to comply with them, but we don't necessarily have to get them all the time. So that's a good question.

MR. BENNETT: Mike, one comment this year, your visual aids have really improved over the last year or so. They are really, compared to a couple years ago, impressive.

I have a real comment, a question. Brian talked about the cap design and you are doing the underground water. They come together on that area just north of Los Coyotes. Could you comment on some of the design thinking that put the wall out there and how that combines with Alternative #3. You know -- do you understand the question? Could you give us a little bit more thinking that went into putting the wall out there? How are you going to worry about the pooled water that's going to be on top of it?

MR. MONTGOMERY: Yeah, it's more philosophy. Okay? People can generally see this.

The sump caps are going to be here and here (indicating), right (Slide #3)? And everybody knows this is all on a hillside. You have a lot of up-land area here, right? and it's undeveloped. And it could become developed. And if it were to become developed, you would

have even more run off from this up-land area. And that water runs from the up-land area under Rosecrans in a culvert right about there (indicating) and on to the site. And it eventually runs on to the golf course (slide #3).

And so you have a large area here that in the winter season gets a lot of water. And you get standing water. And you actually get a creek out there during high-rain events. So philosophically, Chuck -- you have to listen to my answer if you ask a question. It's a rule. We would line this area along here (Slide #3) (indicating). Potentially look at diverting the water that runs onto the site in really high-peak events, if that makes sense. But for the most part, we just want to keep this water from ponding up in here and getting into the shallow perched units and moving solubilized contamination, which is contaminants, not the hard, gooey waste stuff that comes to the surface. But like sugar in your tea when you stir it up, dissolves in water. The chemicals that are in the tar do that to some degree.

They get into the water -- you understand these processes, but I'm generally answering the question for everybody. They get into the water and that water flows down. and sometimes those contaminants adsorb or attach themselves to clean soil particles underneath the pits themselves. And so you will get 40, maybe 30 feet

underneath the bottom of that black, gooey stuff. And you'll have soil that looks clean but smells bad.

And if you introduce -- if you allow this water to continue to filter through that area, it will over time release these chemicals from those soil particles and get back into the water and potentially go down to the regional aquifer.

So, philosophically, the notion here is that we are just going to dry out that whole area underneath the sumps themselves, not let any water get in there so that none of the waste that's down there, not the black. gooey stuff but the absorbed low concentration contaminants, gets into that regional aquifer. That's the philosophical approach to that alternative.

UNIDENTIFIED SPEAKER: Can I ask another one?

MR. MONTGOMERY: Yes, feel free.

UNIDENTIFIED SPEAKER: Even though the benzene hasn't reached the aquifer yet, because it doesn't move as fast as some of the other contaminants, right, so will it reach it in 20 years even if you contain it as you propose?

MR. MONTGOMERY: Well, one thing that I think we can consider here is that the waste has already been out here of 50 years. And so we've had the sumps out there generally in an unlined and uncapped condition for the

last 50 years.
So I would expect that the potential migration rates that would occur at the site, we would see that migration of those contaminants. And benzene moves fairly quickly relative to some of these other contaminants.
So we would expect to see it. It also degrades very quickly. And the spreading effect of these perched units may have done a lot to effectively allow dispersion and really just an overall dilution of the concentrations of the benzene and the higher end chemicals that would be of concern.
UNIDENTIFIED SPEAKER: But part of this is perched and part of it isn't, right? So part of it --
MR. MONTGOMERY: No. The water is perched before it reaches the regional aquifer. It has to go through a couple of lenses. That's kind of a simplified diagram (Slide #4). And I think if you can take a second and go back and look at these charts back here, you can see those tan layers are all lower permeability layers that the water has to go through before it gets to that regional aquifer.
So no matter what part of the site the water goes through, it's got to go through some of those layers. And that takes time and spreads it out and dilutes it and

disperses it.
UNIDENTIFIED SPEAKER: Mike, can you state it clearly? I'm confused, and there might be other people too. Basically, you are going to issue a ROD (Record of Decision) regarding groundwater that says, since you've chosen Alternative #3, you follow the ROD or the solid waste that is put on the cap. Is that what it is? There's no real enforcement? There's nothing going on other than what you are saying to follow the resolution that you've decided already?
MR. MONTGOMERY: No. I think we will have to after the remedy selection process, which is after this public comment period which is going to end on April the 5th, so if you comments that you want to give us in writing and not here tonight, if you are bashful, or you just want to put it in writing what it is you have to say, send that to us before april 5th, and we will address those comments in our Record of Decision. Most of you all know that process, because you have comment before on the decisions.
But then we would make the decision and then we would potentially issue an order or negotiate that. But we -- the advantage of this one is that we integrate it right into the design work. so if there was an order, we just say, "Hey, do this stuff right along with the

other stuff you are doing." Or if we were negotiating it, then we would put it all on the table and negotiate it.

UNIDENTIFIED SPEAKER: So your Record of Decision is to follow through with Alternative #3?

MR. MONTGOMERY: Right.

UNIDENTIFIED SPEAKER: Can you, therefore, speed up the process at all by --

MR. MONTGOMERY: We can speed up Alternative #3 so that it's integrated into that design. I have confidence we can speed it up so that it's integrated into that design and done with the closure and containment system.

So we can do a conceptual -- Brian just said we just goty the conceptual. If we get the remedy selection soon, we can do it. And I think that in general, the McColl Site Group has felt that this is an acceptable alternative. So from a sort of precedential standpoint I think we have got a good alternative in that all the parties agree, EPA, assuming the community agrees, MSG generally agrees that it's a good plan, or it's my understanding at this point that they do.

Then I think they would be open to integrating it into the ongoing work. We could get an enforcement mechanism out there if we needed to do that, and have it done by December when the design is going to be done.

UNIDENTIFIED SPEAKER: What would there be to enforce?

MR. MONTGOMERY: Well, it would be an additional scope. It would be a little extra work. We would be tacking a little extra work on the work that we already have in the order. And there's still a question out there right now as to how we are going to do the construction from an enforcement standpoint. I covered a little bit --

UNIDENTIFIED SPEAKER; who's going to pay the bills?

MR. MONTGOMERY: It's just a question of whether or not we negotiate an agreement or whether or not we use an order like we've used.

MS. GILMOUR: Would you please repeat the question?

MR. MONTGOMERY: I'm sorry. I said I was going to do that and I didn't. Sorry.

The last question was: How are we going to get this work done from an enforcement standpoint and when is it going to get done?

Okay. We can go to the official comment portion. I'm going to sit down. Fraser is going to stand up. If you could state your name, spell it if it's a difficult spelling. And what else was I supposed to say?

MR. FELTER: You're taking all my lines.

MR. MONTGOMERY: Sorry.
MR. FELTER: Can you hear me?
All right. This is the officially required public comment period for this proposed plan for the groundwater at this McColl site. The way this works is as Mike had described. You are invited to comment and we will be receiving those comments. The transcriptionist will take it down. Again, she would appreciate you spelling your name if it's an unusual spelling, and also your address if possible.
We will not respond this evening to your statements unless there is some matter of fact that is misstated. For instance, if someone says "black" is "white," Mike or Brian will correct that. But that's the only time we will respond.
The responses to your comments this evening then will be incorporated in an official responsiveness summary, and that will be filed as part of the administrative record.
Any questions as far as the process this evening? All right. I hereby declare the comment period open. Would anyone like to comment on the proposed plan?
Yes, Mr. Bushey?
[Public comments begin.]
MR. BUSHEY: My name is Dave Bushey, B-u-s-h-e-y.

I live at 1819 Fairgreen Drive in Fullerton. And I agree with your plan as proposed. And I thank you for all your work.
MR. FELTER: Thank you.
Do we have any other comments? Yes, Mr Bennett?
MR. BENNETT: My name is Chuck Bennett, B-e-n-n-e-t-t. I'm a resident of Fullerton and part of the FHCA. I would like to make the comment that the selection of #3 or #1 would have been the fastest alternatives at implementation. And I'm pleased to see that the Agency has chosen one of the prompter remedial plans for the groundwater.
And I think -- my sense of the community is that they are supportive of either #1 or #3 as the choices.
MR. FELTER: Thank you.
Yes, sir?
MR. SIEGEL: My name is Gene Siegel, S-i-e-g-e-l. I live at 2617 Tiffany Place.
Looking over the four alternatives, I would agree with EPA that alternative #3 does make the most sense. from looking at the factors of overall protection, long-term effectiveness, cost effectiveness, and short-term risk, if you look at all four of those factors,

they seem to be the best overall of all the alternatives.
MR. FELTER: Thank you.
Do I have another comment? Yes, Mr. Olquin?
MR. OLQUIN: It's Alex Richard Olquin, O-l-q-u-i-n. My address is 1506 Baronet Place, City of Fullerton. I'm a member of FHCA. I agree with Alternative #3.
There is a concern I have regarding down the road that long-term maintenance and monitoring, that diligence is served. And that I would hope that in the issuing of the ROD, that an explanation would be made and comments given by US EPA regarding that MSG will stand by and monitor the wells and that we will not have problems hereafter, once the 30-year peiod is over or maintenance of the cap and implementation of their orders.
MR. FELTER: Thank you.
I've just been reminded that several times this evening during this period the initials "FHCA" have been used. For the record, that stands for the "Fullerton Hills Community Association."
Do I have any other comments?
All right. Well, hearing no others, I officially conclude the official comment period and turn the meeting over to Mike and Brian for general questions.
Thank you.

[End of public comments.]
MR. MONTGOMERY: Thanks, Fraser.
So are there any other general questions about the site status?
UNIDENTIFIED SPEAKER: I'm from Newport Beach and the reason I came here is that I feel if it gets contaminated into everybody's water, it's real difficult to reverse it once it happens. And you are playing with something -- you're talking about $1, $2, $3 million, but it's a big, big issue.
So what are you going to do when it gets dangerous? How do you know when it gets dangerous?
MR. MONTGOMERY: That's a good question. The important thing to keep in mind is that under the Superfund program, we have a five-year review period. And we go back every five years and review the remedies that we select. They're not often changed.
But in the case of groundwater remedies, they are quite often modified. And there would be an opportunity to modify this decision during that five-year review period.
And I think that we're real concerned. And I think we have taken quite a long time to make sure that we can make a decision like this. You know, it almost takes a longer time to make a decision not to do a

lot than it takes to maked a decision to do a whole lot because we've got to say with confidence that we don't think it's real significant problem.

Now, built into these plans is $1.5 million of monitoring that's intended to go into perpetuity.

UNIDENTIFIED SPEAKER: But it is Superfund, so it's not benign. It's a big deal.

MR. MONTGOMERY: It's a fairly big deal. But I think what you have also got to take into account is that even though there is a hundred thousand cubic yards of waste out here, this is not the type of waste that often serves as being a real problem for groundwater contamination. That's a real generalization.

But in any community you have got leaking underground storage tanks that have pure product that go into regional aquifers where the water is real shallow. You know, that could potentially pose a greater threat than the McColl site as we know it. and it hasn't been investigated yet.

So you have to weigh all these risks. And even though Superfund, you know, it's a big deal, and I can tell you the reason it's a big deal is because of the hundred thousand cubic yards of waste that's at the site.

UNIDENTIFIED SPEAKER: That's why it's one of the top five sites in the United States.

MR. MONTGOMERY: But just because you have got this big source, doesn't mean that you automatically have a big groundwater contamination problem. You know -- that's why youspend a lot of time investigating it.

Gene Siegel had his hand up, I'm sorry.

MR. SIEGEL: As I indicated earlier, I'm in favor of Alternative #3. But just as a question, #2, you indicated that there are negotiations. And naturally as well, some people are going to be curious about that (inaudible) point of view (inaudible) EPA is going to pay everybody $100,000 to put a well in their backyard, you may have everybody go into Alternative #2. So that needs some clarification.

MR. MONTGOMERY: Well, I think that at the time that we talked about this Alternative (#2), we would be talking about -- EPA would prefer not to implement these remedies. And we're going to ask the McColl Site Group and quite possibly the section of the government that's found liable to implement the remedies, and so there would be negotiations.

And we would have to address the fact that, hey, maybe some people are going to say, "No way, I'm not going to do this unless you give me a whole bunch of money." then we have to put a price tag on it and say, "Well, what's it worth?' and this is difficult. I mean,

that's sort of the problem with that Alternative (#2).
there's different ways to approach it. But you know, do you want to have people have to deal with restrictions on their deeds or how you enforce it with time? You know, unless you have a deed restriction -- if you don't have a deed restriction then you are sort of going on a hand shake and a promise.
And that's great for the residents that live there now or whoever lives next to the site, but what about in 50 years or 100 years? There's a lot of hypothetical questions you can get into with that particular option.
One of the reasons why we didn't pick it also is that the Regional Board doesn't particularly like it. And the Orange County Water District, they both said that they weren't particularly fond of it.
And it may be something that would be considered in a five-year review period. If you find that, in fact, the concentrations of the regional aquifer are getting worse or a little bit worse or they are not getting any better, you might go out there and say, "Hey, let's talk to the people that live next to the site, the people that own property near the site to try and get them to agree with us not to put any wells in." The likelihood that people are going to put wells in is real low.

UNIDENTIFIED SPEAKER: That's the question I asked. Obviously, alternative #3 makes sense. If you look at -- if you weigh the factors of high, medium and low -- you could put a point value of high, medium and low. And the important fact is it comes up better than the other alternatives.
But your assumption is predicated on that fact that there are no wells in the area. And that's why #2 is there to stop people from having wells. I don't foresee putting wells there. I'm not sure anyone would since you have the ability to get water from Fullerton
But how do you restrict somebody -- let's say you have ten people in the area who want to put a well in. Is there going to be some restrictions because they put a well in? Aren't they going to be pulling up contaminants?
MR. MONTGOMERY: Legally we can't. Legally you can't. Legally people have the right to their -- there's a legal term for them. But, basically, your property line goes down. And it includes all that stuff down there. So if you really want to put a well in; you can do it.
It wouldn't make any sense for a residential person living in that community to want to put a well in. You are already served by water. It would only cost you more money to install a well and operate a well.

UNIDENTIFIED SPEAKER: so why have #2, because Alternative #2 only pertains to -- you know, negotiating people not to have a well. Other than that, #2 and #1 seem to be the same.

MR. MONTGOMERY: They're real similar. The only difference is the agreement not to put the well in.

Next question?

UNIDENTIFIED SPEAKER: Well, within the City of Buena Park they would have to go through the city to get permits, and that would be overlooked -- that would take a look at that for one.

The most obvious one is Mr. McAuley who would like to have water out of the ground, then he wouldn't have to pay the city to water the golf course. But that would be -- because he would be using more water than any single resident within the whole area. But, you know, he would still have to go through the city for permits even though it's his property.

MR. MONTGOMERY: A well permit

UNIDENTIFIED SPEAKER: A well permit, plus the State.

MR. MONTGOMERY: Would they deny the permit, do you think?

UNIDENTIFIED SPEAKER: It all depends on what happens.

MR. BENNETT: Mike, I think one of the aspects you didn't raise is that in the groundwater study that's been done, there's been a very intense risk assessment of the contaminated water in both the amounts of contaminants and the levels. And they have not been found to be a terrible risk -- I don't know what the right term is. But they are not deemed particularly risky. The figures have been very low in terms of risk.

And that's why the method of control is not as extreme as, for instance, if there were high levels of known carcinogens, that you'd say, "Well, we do have to pump and treat," or something like that. So that's one aspect of it. I think that's important.

MR. MONTGOMERY; Sure, okay.

Go ahead, Richard.

MR. OLQUIN: I had a question for you, Mike. Something that has been troubling me for a while with regards -- I know that there is a legal side of this involvement or branch of the government. Currently MSG is on the site doing the work.

Now, in regards to both the groundwater, plus implementation of the cap, even though MSG is doing the work now, if at a later time it's ruled in court that culpability falls onto the government, in essence, the oil companies then seek reimbursement from the government.

What's going to happen to us if there is a problem 15 years from now as opposed to 30, and it's found that no longer is it the case that MSG is found to have any responsibilities as far as financially helping us with the situation?

MR. MONTGOMERY: It's my understanding in the process of that ruling that they're going to go through an allocation hearing process, and then a judge is going to determine a relative percentage of responsibility. And that allocation and the ruling could subsequently be appealed.

And so I think what you'll find is that the parties are going to be arguing over whether or not the ruling is fair. And then there will be allocations, interim allocations. But what you won't find, because this particular judge has alteady ruled that the McColl Site Group Companies are responsible parties, they will not be let off the hook.

In other word, the judge is not likely to say, "I was wrong about my ruling about this group of people being responsible and now this group of people is responsible. " He's going to throw all those people into a pot and say, "Well, you know, you're responsible for "X" percent and you're responsible for "Y" percent." And then somebody is going to appeal it.

So the fact of the matter is that a lot of money is going to change hands between these parties. But in the meantime, you know, we'll continue to do the work: we'll continue to ask the McColl Site Group to do the work.

UNIDENTIFIED SPEAKER: What I was asking more was if there’s a problem down the road?

MR. MONTGOMERY: Like 15, 20 years?

MR. BENNETT: Yeah. We live in earthquake country. If it cracks open and falls on the heads of government, are we suddenly going to have to fight the 100 pound gorilla?

MR. MONTGOMERY: Who knows in 15, 20 yars, is there going to be a Superfund?

MR. SIEGEL: I think he answered the question. I just don't think it was understood, your answer.

What happens is (inaudible).

COURT REPORTER: Excuse me, I cannot hear you. Can you please use the microphone?

MR. MONTGOMERY: Can you use the microphone?

MR. SIEGEL: Basically, you have a situation here where the courts are going to determine that there's multiple defendants in the case. The multiple defendants are the McColl Site Group, maybe McAuley, it may be the government. Whatever it is, it's multiple defendants.

The court will then determine the percentage of liability. That is what the McColl Site Group probably has done by bringing the government into a federal case. They want some declaratory relief. They want the court to determine the rights and responsibilities of the parties. They want some indemnification, money back.

They want contributions, some money back. They want the court to determine the percentage of liability; how much percent they have to pay, how much percent the government has to pay.

When the court make its ruling, whatever that ruling is, and after all the appeals, there will be a determination of 100 percent liability. But it may be prorated, 53/47, 60/40, some number, so that if something occurs down the road, there is still a judgement.

And down the road, whoever's percentage of liability is their percentage, then they'll have to absorb their share. And if they pay 100 percent, they can go after the other party for a contribution for that 50, 60 or 40 percent. And that's reciprocal back and forth, whether it's the McColl Site Group or the government or some other entity.

So whatever decision is made now, is the decision forever. You just won't have to relitigate it later on. You won't have to worry about relitigating it

theoretically because there will be a final determination now in the present court hearing.

MR. MONTGOMERY: It helps to have a judge in the neighborhood. I couldn't have done that.

But basically, I think another aspect of that question is who is going to be managing the contractor? Who's going to be responsible for going out there are doing the inspection and checking the wells? And the answer to that is we haven't really found out yet. We don't really know yet. That's an issue.

MR. SIEGEL: And that's a big problem whether it's the private sector or public sector, whether it's the government or MSG, different rules apply. And if the government controls the hiring of the contractor, that could take years because of the different bidding processes and the different things that have to be done.

If the McColl Site Group does that, they can handle it differently, and it can be done a lot faster. So, hopefully, I think the public here, if there is any comment to be made, I think the community here would rather have the McColl Site Group retain the contract, because it will be a lot faster. It's a different bidding process. They can handle it a lot faster than going through the government bidding. At least, that's my understanding of the difference.

UNIDENTIFIED SPEAKER: (Inaudible).

MR. MONTGOMERY: Operations and maintenance, did I say "O" and "M"? Operations and maintenance.

UNIDENTIFIED SPEAKER: I get a feeling from the comment from the gentleman from Newport Beach that he's not real sure that the community here feels comfortable. In other words, are we taking the short route out to the detriment of the entire country?

And you may want to go through how many wells have been dug and tested, and the fact that the majority of the wells, the vast majority of the wells, show absolutely nothing, and that the amount of waste that has been found is extremely small. And that that amount has not been going up. In fact, there's been some cases going down or almost nondetectable.

UNIDENTIFIED SPEAKER: Can I make a comment? A plume can be like this (indicating). A plume is a pyramid, inverted pyramid. You see nothing at the beginning, and then all of a sudden you have got a lot.

MR. MONTGOMERY: I don't exactly follow you. I mean, you know, it might be -- you know, if you want to talk specifically about the hydrology of the site and you want to take a second. Marina West with the Orange County Water district, who is sitting behind you with the glasses, has studied these maps. She knows the subsurface

very well. Melitta Rorty is here with ICF. Both of them are hydrologists, and both are very familiar with the subsurface at the site.

We've put a lot of wells out there. We have done a lot of analytical work and I think we have a pretty good handle on it.

Feel free to investigate that work. It will be good to know that somebody besides us has read it.

UNIDENTIFIED SPEAKER: Mike, we've been a little bit -- there haven't been very many groundwater meetings in the last couple of months. And I think at the last kinds of ones we were discussing the fourth quarter monitoring results. And at the time the levels of contamination that were seen, the low levels, were declining in most wells I believe.

Is there a plan to continue that kind of monitoring or an abridged version of monitoring or is that going to be incorporated in the general monitoring of the site?

MR. MONTGOMERY: We're going to continue to do that monitoring. We might modify the monitoring plan a little bit. and I think we are going to put one, quite possibly two more wells further out here (Slide #3). Because we are concerned that this well, P-10L, which is in the upper portion of the regional aquifer has got some

of these Tetrahydrothiophenes in the 100 to 200 range.
And we'd really like to see a clean or a very close to clean well in that regional aquifer out here, so that we can definitively say -- and maybe a couple of them. I think it has been pointed out to complement these other clean wells that are in the regional aquifer to assure that we are not missing the plume.
In fact, we have got a clean well in the regional aquifer, and the plume is going off over here or is going off over here (indicating), between our monitoring points.
And in this case, at the moment, we have got two or three in that regional aquifer. And we'd like to get a few more out here.
And if that shows something totally different, then I don't want to be back up here saying we made a big mistake. Okay.
Thank you all for coming tonight. We'll hang around for a little while afterwards if you want to ask any questions.
Linda, do you want to give a little two-minute update on the status of the property transfer?
MS. LEQUIRE: Well, real briefly. The property in question is the Rampart property. We're continuing to

work with the County of Orange to get it on the Board of Supervisors' agenda, so it can move forward. But in the meantime, it actually is moving forward. There's a lot of work being done between a lot of attorneys. The attorneys representing Mr. McAuley, representing the County of Orange and representing MSG.
But from all indications, I've had the opportunity to talk to all the supervisors; offices. They know that it's going to be coming forward, hopefully, in the next couple of weeks to them. And i think it looks real positive. I have felt that way for sometime. And I do think that we have a real good opportunity to resolve the Rampart property -- ownership of the Rampart property.
MR. MONTGOMERY: Great. Thank you.
Thanks everyone.
(END OF PROCEEDINGS.)

EXHIBIT C

MARCH 14, 1996
PUBLIC MEETING COMMENTS

Mr. Felter: I hereby declare the comment period open. Would anyone like to comment on the proposed plan?

Mr. Bushey: Yes. My name is Dave Bushey, B-u-s-h-e-y. I live at 1819 Fairgreen Drive in Fullerton. And I agree with your plan as proposed. And I thank you for all your work.

Mr. Felter: Thank you. Do we have any other comments?

Mr. Bennett: Yes. My name is Chuck Bennett, B-e-n-n-e-t-t. I'm a resident of Fullerton and part of the FHCA. I would like to make the comment that the selection of #3 or #1 would have been the fastest alternatives at implementation. And I'm pleased to see that the Agency has chosen one of the prompter remedial plans for the groundwater.

And I think -- my sense of the community is that they are supportive of either #1 or #3 as the choices.

Mr. Felter: Thank you. Yes, sir?

Mr. Siegel: My name is Gene Siegel, S-i-e-g-e-l. I live at 2617 Tiffany Place. Looking over four alternatives, I would agree with EPA that Alternative #3 does make the most sense. From looking at the factors of overall protection, long-term effectiveness, cost effectiveness, and short-term risk, if you look at all four of those factors, they seem to be the best overall of all the alternatives.

Mr. Felter: Thank you. do I have another comment?

Mr. Olquin: Yes. It's Alex Richard Olquin, O-l-q-u-i-n. My address is 1506 Baronet Place, city of Fullerton. I'm a member of FHCA. I agree with Alternative #3.

There is a concern I have regarding down the road that long-term maintenance and monitoring, that diligence is served. And that I would hope that in the issuing of the rod, that an explanation would be made and comments given by US EPA regarding that MSG will stand by and monitor the wells and that we will not have problems hereafter, once the 30-year period is over or maintenance of the cap and implementation of their orders.

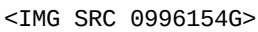
Mr. Felter: Thank you. I've just been reminded that several times this evening during this period the initials FHCA have been used. For the record, that stands for the "Fullerton Hills Community Association.

Do I have any other comments?

All right. Well, hearing no others, I officially conclude the official comment period and turn the meeting over to Mike and Brian for general questions. Thank you.

EXHIBIT D

WRITTEN COMMENTS FROM STATE OF CALIFORNIA AND MCCOLL SITE GROUP



DEPARTMENT OF TOXIC SUBSTANCES CONTROL
400 P STREET, 4th FLOOR
P.O. BOX 806
SACRAMENTO, CA 95812-0806

(916) 322-8046

March 29, 1996

Mr. Michael Montgomery
Remedial Project Manager
U.S. Environmental Protection Agent
Hazardous Material Division
75 Hawthorne Street, MS: H-6-1
San Francisco, CA 94105

McCOLL GROUND WATER OPERABLE UNIT PROPOSED PLAN

Dear Mr. Montgomery:

The California department of Toxic substances Control (DTSC) has reviewed the United States Environmental Protection Agency's (U.S. EPA) Proposed Plan (Plan) for the ground Water Operable Unit at the McColl hazardous waste site. U.S. EPA issued the Plan on February 27, 1996 in the form of a fact sheet titled "EPA announces proposed plan for contaminated groundwater at the McColl Superfund Site", February 1996.

The DTSC has been given the opportunity to review and provide comments to U.S. EPA on draft and final versions of the various documents U.S. EPA used in developing the Plan. The documents reviewed included those of the remedial investigation, feasibility study (GWFS), and the baseline risk assessment, which were prepared by either U.S. EPA's contractor or the McColl Site Group, the responsible parties. Also reviewed were the applicable or relevant and appropriate requirements (ARARs), and the nine criteria analysis, both of which were included in the GWFS. (A formal alternatives risk assessment document was not prepared). Individuals reviewing the Plan and the various support documents include Dr. William Vance and Dr. David Chan of the Office of Environmental Health Hazard Assessment, Ms. Kathleen Considine of DTSC's Geological Service Unit and Ms. Caroline Rudolph, DTSC's project manager for the McColl Site.

The DTSC's comments and concerns regarding the Plan are derived from review of the draft and final documents along with that of the Plan. The Department's comments on the Plan are as follows, with Ms. Considin's comments (related to the GWFS) provided as an attachment to further clarify DTSC's primary concern with the presently proposed Plan:

Conceptually, U.S. EPA's Plan of infiltration reduction and long-term monitoring appears to be realistic and implementable considering the minimal contamination currently found within the existing monitoring system. The Plan, denoted as Alternative 3 in the fact sheet, does lack an element of the alternative as it was previously described in the GWFS: that of institutional controls. Institutional controls are a means of ensuring the efficiency and integrity of the long-term monitoring system. DTSC recommends that U.S. EPA's final Plan include at a minimum the contingency of placing appropriate institutional controls if data review of the completed long-term monitoring system (i.e., including the additional one or two wells proposed as part of the Plan) indicates that such controls are needed.

If you have any questions regarding the DTSC's comments and concerns regarding the Plan please contact me at (916) 324-2857.

Sincerely,

<IMG SRC 0996154H>

Caroline Rudolph
Sr. Hazardous Substances Scientist
Special Projects Branch

Enclosure

cc: Mr. Robert Holub
Santa Ana Regional Water Quality Control Board
3737 Main Street, Suite 500
Riverside, California 92501-3339

Ms. Marina West
Orange County Water District
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Fountain Valley, California 92728-8300

Mr. Lynton Baker
California Air Resources Board
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Sacramento, California 95812-2815

<IMG SRC 0996154I>

M E M O R A N D U M

To: Caroline Rudolph
Site Mitigation Division
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<IMG SRC 0996154J>

From: Kathleen Considine
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Geologic Services Unit
301 Capital Mall, Fourth Floor
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Reviewed by: Marie McCrink, RG, CHG
Geologic Services Unit

Date: March 21, 1996

Subject: McColl Final Groundwater Feasibility Study

INTRODUCTION

As requested, I have reviewed the document Feasibility study Report, Groundwater Operable Unit, McColl Site (GWFS), dated February 7, 1996. The GWFS was prepared by ICF Technology Incorporated (ICF) for the United States Environmental Protection Agency (U.S. EPA). The GWFS presents the remedial alternatives for contaminated groundwater at the McColl site.

CONCLUSIONS & RECOMMENDATIONS

The chosen Remedial Alternative 3 (RA 3) involves source controls, groundwater monitoring, infiltration reduction measures, and institutional controls, accroding to the discussion on page 6 23 of the GWFS. The GWFS then makes the statement on page 6-41 that" ...Remedial Alternative 3 would be the easiest to implement, in the event that the required area of institutional control is reduced or eliminated with remedial action." The RA 3, as presented to the public makes no mention at all of institutional controls. I strongly recommend that institutional controls be retained as part of RA 3.

The reason why institutional controls should be retained is as follows. The total horizontal and vertical extent of contamination has not been determined off-site in the down-gradient direction.

Additional groundwater monitoring wells are proposed to resolve this issue and the area of institutional control cannot be adequately defined at this time. A reduction in contaminant levels is expected after the source control and infiltration reduction measures are in place. However, since the Orange County groundwater basin is non-adjudicated, without institutional controls there is no control on the possible installation and pumping of a private well (s) in the site vicinity. This could change the groundwater flow direction and gradient and potentially pull more contamination from the site.

If you have any questions concerning this memorandum, please call Kathleen Considine at (916) 323-3586 or CALNET 8-473-3586.

cc: Richard McJunkin, CEG., Chief
Geologic Services Unit
Site Mitigation Program

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<IMG SRC 0996154K>

April 5, 1996 Serial No: EPA/MSG-033

U.S. Environmental Protection Agency
Region IX
Attn: Michael Montgomery
75 Hawthorne Street
San Francisco, CA 94105

Subject: Comments Provided by McColl Site Group
During U.S. Environmental Protection Agency (U.S.EPA)
Public Comment Period, Groundwater Operable Unit,
McColl Site, Fullerton, California

Dear Mr. Montgomery:

The purpose of this letter is to provide the formal comments of the McColl Site Group ("MSG") regarding the Remedial Investigation (RI), Feasibility Study (FS), Risk Assessment (RA), and EPA's Proposed Plan for the Groundwater Operable Unit at the McColl site in Fullerton, California. These comments are prepared in response to the U.S. EPA Public Comment Period which extends to April 5, 1996.

In response to Administrative Order 93-21, MSG has conducted routine groundwater monitoring as part of a groundwater investigation which was begun by EPA in 1989. Based upon that investigation, as well as the Remedial Investigation Report completed by MSG, the Risk Assessment completed by EPA, and the Feasibility Study that was initiated by MSG and subsequently completed by EPA, EPA has proposed a remedial action plan which has identified Alternative #3 (described in the Feasibility Study Report) as the preferred alternative. MSG supports the selection of Alternative #3 of the Feasibility Study Report. The following points summarize the results of the overall groundwater program and clarify certain aspects of the proposed alternative that should be reflected in the Record of Decision.

- Results of the groundwater monitoring conducted by both the EPA and MSG, the Remedial Investigation, the Risk Assessment, and the Feasibility Study Report, all indicate that adverse impacts to groundwater from waste sumps at the McColl site are minimal.

- The health risk assessment was based upon the assumption that perched groundwater would be used as drinking water. However, given that these perched zones have no potential for use as drinking water, that assumption was unnecessarily conservative.

- EPA has raised concerns regarding potential difficulties in negotiating institutional controls with adjacent landowners. However, institutional controls should be considered for the McColl site and the area immediately south of the site within the golf course property where implementation hurdles should not pose a significant problem.

- Completion of the surface remedy, RCRA-equivalent cover and sub-surface barrier wall system, will significantly reduce the potential for the sumps to impact groundwater in the future. Although construction of the surface remedy will provide the primary means of reducing groundwater contaminants, MSG supports the additional infiltration controls described in Alternative #3, with the exception of the use of imported low permeability materials outside of drainage ditches and redirection of surface water running onto the property.

- Continued monitoring and installation of up to two new monitoring wells in the regional aquifer, ling of retention ponds and primary drainage ditches, and reduction of infiltration through surface grading is appropriate for the site. Use of imported low permeability materials outside of drainage ditches and redirection of surface water running onto the property would not provide significant benefits relative to the cost of implementing these actions. Accordingly, use of low permeability materials and redirection of surface water should be eliminated from further consideration in the remedy.

- EPA has chosen to identify Operable Unit #1 for groundwater separately from Operable Unit #2 for the surface remedy. However, it is important that the remedial design for Operable Unit #1 be integrated into the design for Operable Unit #2. If EPA does not facilitate timely integration of these designs, the cost and schedule for both remedies will be adversely impacted.

- Well W-6A is screened within the largely unsaturated and perched portion of the "C" sand/silt packet. As such, groundwater retrieved from well W-6A is not considered to be representative of the continuously saturated portion of the "C" flow unit.

- The "C" flow unit located within the La Habra Formation is not considered to be a significant part of the regional groundwater system. As stated in the 1967 Department of Water Resources report Progress Report on Groundwater Geology of the Coastal Plain of Orange County, the shallower water-bearing deposits of the La Habra Formation consist of semiperched aquifers, of limted extent. The limited recharge area and the lack of continuity of the coarse-grained deposits of the "C" flow unit indicate the extent of the "C" flow unit limited, and not anticipated to be regional in nature.

- The presence of THT compounds in the "D" flow unit has not been verified by the quarterly monitoring program. THT was semi-quantified (0.6 µg/L "J" qualified) in one sample from well P-1D upgradient of the sumps; however, THT was not detected in the duplicate sample and was detected in quality control samples. These results indicate that this detection of THT was not valid. THT has not been detected in any "C" flow unit wells with the exception of wells P-5L and P-10L. The underlying "D" flow unit well P-5D indicates that the THT compounds detected in well P-5L have not migrated downward at this location. A "D" flow unit well is proposed to be constructed near well P-10L to confirm that THT compounds have not migrated downward at this location.

Groundwater extraction (Alternative #4 of the Feasibility Study) does not meaningfully reduce the toxicity, mobility, or volume of chemicals of concern in the regional aquifer in comparison to the No Further Action alternative, since data indicates constituents are naturally attenuated before reaching the regional aquifer. Groundwater extraction could increase flow velocities, and create downward hydraulic gradients between groundwater flow units which, in fact, could result in increased mobility. Furthermore, groundwater extraction would not be effective in reducing the concentrations of the chemicals of concern to below background levels or in addressing their concentrations at the source areas. Finally, treatment residuals would be generated that would require further off-site waste treatment and/or disposal.

The benefits of groundwater extraction 9described in Alternative #4) are overstated in the FS report. In particular, Alternative #4 will not meaningfully increase long-term effectiveness, meaningfully reduce toxicity and mobility or volume through treatment or enhance compliance with ARARs.

MSG AND U.S.EPA have developed a very productive and cooperative working relationship which has resulted in effective resolutions to significant issues regarding the RI, FS, and RA. The following specific comments are provided to give EPA additional feedback.

Comment #1:

Performance of the health risk assessment on "unusable" perched groundwater continues to be inappropriate since no pathway for health risk exists, and any action by EPA on the basis of these risks is not warranted. Assuming the "unusable" groundwater is "usable" for purposes of exposure compromises the technical integrity of the risk assessment. Additionally, this approach could mislead the public regarding potential risks posed by the Site.

Comment #2:

MSG explained the inappropriateness of designating State Water Resources Control Board (SWRCB) Resolutions 68-16, 88-63 and 92-49 as applicable or relevant and appropriate requirements (ARARs) in its letter to EPA dated January 23, 1996. The reasons set forth in that letter that these Resolutions cannot be designated as ARARs still stand. MSG understands that U.S. EPA intends to choose Alternative #3 as the remedy for the McColl site and that the Resolutions will not be designated as ARARs or TBCs for Alternative #3 in the Record of Decision (ROD). MSG agrees that the Resolutions are not applicable to Alternative #3 and therefore should not be designated as ARARs or TBCs in the ROD.

In addition, it is important that EPA and other administrative agencies understand why the Resolutions cannot be designated as ARARs for any of the other alternatives either. As explained in that letter, EPA's own guidance provides that a state law or regulation "must be applicable to all circumstances covered by the requirement" to be considered as a potential ARAR. EPA, CERCLA Compliance With State Requirements (December 1989). In other words, a state requirement that does not apply generally cannot be designated as an ARAR for a Superfund site. Because SWRCB Resolution 92-49 is not being applied consistently in California at this time, it cannot be designated as an ARAR for the McColl site.

As it is currently adopted by the SWRCB, Section G of SWRCB Resolution 92-49 requires that groundwater be restored to background levels, unless background levels are determined not to be achievable, in which case groundwater must remediated to meet local basin plan objectives. Resolution 92-49 deviation from background levels or basin plan objectives under any circumstance.

Recognizing that there are situations where it is not technically or economically feasible to restore groundwater to background levels or even to basin plan objectives, the SWRCB has proposed an amendment to Resolution 92-49 that would establish a containment zone strategy for sites where it is determined to be technically or economically infeasible to meet the requirements of Resolution 92-49. Within the containment zone, groundwater remediation would not be required; instead, remedial efforts would be focused on containment rather than restoration in that area.

The proposed amendments have not been formally adopted by SWRCB, but the SWRCB has established an informal policy that allows Regional water Quality Control Boards (RWQCBs) to exercise individual discretion to implement containment zone strategies. MSG is aware of the following sites within California, where a containment zone strategy has been applied by the RWQCB responsible for overseeing groundwater remediation. despite the fact Resolution 92-49, as currently promulgated, does not authorize such a approach. MSG has not conducted a survey of all RWQCBs within the State; accordingly, this list of containment zone sites should not be considered to be comprehensive.

- Clorax Corporation, Oakland, California. The RWQCB adopted a containment zone for a groundwater plume involving mercury. The mercury was present at concentrations well in excess of the Maximum Concentration Limit (MCL) and extended to off-site properties. Although the groundwater in this area meets the quality to be classified MUN under Resolution 88-63, it is not a current source of groundwater municipal supply. A containment zone was adopted providing for long term monitoring of this groundwater plume.

- Varian and Unysis sites, South San Francisco Bay Area. Containment zones were adopted at both of these sites involving chlorinated solvents in groundwater. Groundwater in these cases is classified as MUN and sits overtop potable water supply aquifers. The containment zones required long term monitoring of groundwater quality in zones where concentrations were well above MCLs. The monitoring programs were designed to ensure that there is no significant migration of VOCs from the affected groundwater zones to the deeper water supply aquifers. Remedial activities beyond monitoring and natural attenuation were apparently not required.

- San Francisco Airport. Several containment zones have been approved at San Francisco Airport involving hydrocarbons, metals, and solvents. Separate containment zones were adopted depending on the point of discharge of the groundwater to the bay or deeper aquifer units. These containment zones provide for the long term monitoring of groundwater where concentrations of hazardous substances are many times in excess of MCLs.

- Xerox Corporation in Irvine, California. This site involved contamination of shallow groundwater by chlorinated solvents. The site was remediated by a two-phrase vapor extraction system to a point that concentrations reached an asymptote but did not materially lower with further remedial efforts. As a result, the Santa Ana RWQCB approved a closure of the remedial activities and removal of all remediation equipment. Long term groundwater monitoring was required with action levels for further remediation set in the range of approximately 1 ppm for several VOCs. The action level concentrations in this "containment zone" are approximately 200 times the MCL. Groundwater in the affected zone would be classified MUN under criteria outlined in Resolution 88-63. The approach that adopted at this site appears to be the equivalent of the containment zone as outlined under the proposed amendments to Resolution 92-49.

Clearly, implementation of Resolution 92-49 is in a state of flux in the State of California. RWQCBs currently have broad discretion to apply a containment zone approach or to follow the strict requirements set forth in Resolution 92-49. As a result, Resolution 92-49 is not being applied consistently throughout California. Under the statutory requirements of CERCLA AND EPA'S own guidance, Resolution 92-49 cannot be designated as an ARAR.

Moreover, as a practical matter, EPA has not been consistent in its designation of SWRCB Resolutions 68-16, 88-63 and 92-49 as ARARs or "To Be Considered" (TBC) criteria. MSG reviewed several of the Feasibility Studies (FS) and Records of Decisions (ROD) prepared since 1992 for EPA-lead sites in California with groundwater contamination. Attached is a list of the sites reviewed and a summary of how the SWRCB Resolutions were applied at those sites. Of the 16 sites reviewed, SWRCB Resolution 92-49 was designated as an ARAR at only 2 49 designated as an ARAR or TBC.

SWRCB Resolution 68-16 was designated as ARAR at 9 sites, but in all cases the FS or ROD specified that Resolution 68-16 was being applied as an action-specific ARAR applicable only to the discharge of treated groundwater. At 3 sites, SWRCB Resolution 68-16 was designated as a TBC, rather than an ARAR, for the same limited purpose. At none of the sites was SWRCB Resolution 68-16 applied as an ARAR to set cleanup levels. Clearly, EPA has taken a flexible approach to its designation of SWRCB Resolutions in the past. At one site, the FS even reported that "EPA does not agree [with the RWQCB] that Resolution 68-16 is an ARAR."

Application of SWRCB Resolution 92-49 is currently in a state of transition; that resolution cannot, now be designated as an ARAR for the McColl site. In conformance with statutory requirements and EPA's own guidance, Resolution 92-49 should be redesignated as a TBC criteria or eliminated from consideration. Moreover, as demonstrated by a review of other sites, EPA has clear flexibility to designate SWRCB Resolutions 68-16 and 88-63 as TBCs as well or to eliminate from the process entirely. To allow EPA and local agencies maximum flexibility to evaluate groundwater issues that may arise at the McColl site in the future, all of the SWRCB Resolutions should be designated as TBC criteria or eliminated from further consideration altogether.

Comment #3:

Under U.S. EPA's detailed analysis of the remedial alternative "Institutional Controls" (Alternative 32), U.S.EPA states that "longterm institutional control may be constrained by the priorities of the enforcing agency." U.S. EPA further states in the FS that institutional controls are "potentially difficult to implement in that it involves the often complex subject of water rights and negotiations with private property owners." The administration of limited Institutional Controls is a viable remedial element for both Alternative #3 and for the remedial strategy outlined to address THT compounds described in Appendix A of the FS report.

Institutional controls would be useful, for example, to assure that cross-contamination between flow units does not occur due to well construction activities. Institutional controls are expected to be necessary only for the McColl site and a portion of the Los Coyotes Country Club property. Because only two separate parcels are involved, implementation problems are not anticipated.

Comment #4:

The Fate and Transport Study of THT Compounds (ENVIRON December 18, 1995) indicates that THT compounds are being degraded, probably as a result of biologically mediated processes. Additionally, the limited infiltration controls proposed in Alternative #3 and the remedial action selected for Operable Unit #1 should effectively isolate the THT compounds within the sump areas from groundwater. Given the degradation of THT compounds in groundwater and the isolation of the sump areas from groundwater, the existing concentrations of THT compounds in groundwater are not likely to be a permanent condition.

The comments provided in this letter provide further support for the conceptual hydrogeologic model of the site developed in the RI and the selection of Remedial Alternative #3, which is described in detail in the FS.

MSG has previously submitted comments to EPA on various deliverables during the remedial investigation activities performed under the Administrative Order 93-21. Although MSG is providing supplemental comments in this letter, the absence of comments restating previous comments made to EPA should not be interpreted as an indication MSG has abandoned any prior comments or positions. On the contrary, MSG hereby reiterates its prior comments and provides this response to summarize key issues.

Yours truly,

<IMG SRC 0996154L>

ATH\SLM:1f

Attachment

cc: State of California
Department of Toxic substances Control
Caroline Rudolph (3)
Parsons Engineering Science
Ken Fredianelli

ATTACHMENT TO MSG COMMENTS ON PROPOSED PLAN FOR GROUNDWATER REMEDIATION AT THE MCCOLL SITE

April 5, 1996

Summary of EPA-lead Sites (1992-present)

Lawrence Livermore National Laboratory Site 300

Interim Record of Decision, September 1995.

Resolution 68-16 was designated as an action-specific ARAR for the dischaarge of treated ground water only. Resolution 92-49 was not designated as an ARAR OR TBC.

Moffett Federal Airfield - Operable Unit 5

FS Report prepared for Department of the Navy by PRC Environmental Management, Inc., June 1, 1995.

Resolutions 68-16 and 92-49 were both designated as an action-specific ARARs to be applied to remedial actions that discharge treated water to surface water. Resolution 68-16 was not designated as a chemical-specific ARAR to be used to set cleanup goals for the contaminated aquifers. Section G of Resolution 92-49 was designated as a chemical-specific ARAR applicable to setting cleanup levels. Section G requires cleanup to background levels, unless background levels are not attainable, in which case cleanup levels must:

1. Be consistent with maximum benefit to the people of the state;

2. Not unreasonably affect present and anticipated beneficial use of such water; and

3. Not result in water quality less than that prescribed in the Water Quality Control Plans and Policies adopted by the State and Regional Water Boards.

Muscoy Plum Operable Unit

RI/FS Report prepared for EPA by URS Consultants, Inc., December 1994.

Neither Resolution 92-49 nor Resolution 68-16 were designated as chemical-specific ARARs. Resolution 68-16 was designated as an action-specific ARAR "to the extent that treated water is reinjected into the aquifer." I other words, Resolution 68-16 was applied to the site to develop a reinjection standard, not to set cleanup levels.

Fort Ord Superfund Site

Record of Decision, November 1994

Resolution 68-16 "is applicable to recharge of the treated water." Resolution 92-49 was not designated as an ARAR or TBC.

United Heckathorn Superfund Site

FS Report prepared for EPA, July 1994.

"The SFBRWQCB has identified Resolution 68-16 as a potential ARAR for the United Heckathorn Site. Although EPA does not agree that Resolution 68-16 is an ARAR, EPA and the State of California agree that achieving the water quality criteria identified above would meet the requirements of 68-16, regardless of whether or not it is an ARAR." Resolution 92-49 was not designated as an ARAR or TBC.

Aircraft Control and Warning Site

Record of Decision, December 1993.

"Resolution 68-16, the water anti-degradation policy, is a State ARAR for the establishment of numerical limits for the reinjection of treated ground water into clean areas (i.e.,high quality waters) of the aquifer, i.e., outside of the contaminated plume." Resolution 92-49 was not designated as an ARAR or TBC.

Tracy defense Depot

Record of Decision, August 1993.

Resolution 92-49 was designated as a TBC.

George Air Force Base

FS Report prepared by International Technolody Corporation, August 1993.

Resolution 68-16 was designated as an action-specific ARAR, but 92-49 was not designated as an ARAR or TBC. The Report states that Resolution 68-16 applies to activities that produce waste and result in a discharges to waters of the State. Presumably, therefore, Resolution 68-16 was applied as a treatment standard. A two-step balancing approach was established to implement 68-16: (1) determine if a degradation may be allowed, and (2) establish the discharge that will meet the objectives of 68-16.

Brown & Bryant Superfund Site

RI/FS Report prepared by EPA, May 28, 1993.

State Resolution 68-16 was designated as an ARAR, but the contaminated aquifer was determined not to be a potential source of drinking water under state or federal law. As a result, EPA stated that Resolution 68-16 would only be applicable to reinjection standards. Moreover, EPA determined that compliance with Maximum Contaminant Levels (MCLs) under the Safe Drinking Water Act would satisfy Resolution 68-16. Resolution 92-49 was not designated as an ARAR or TBC.

Baldwin Park Operable Unit

FS Report prepared for EPA by CH2M Hill, April 2, 1993.

Resolution 68-16 was designated as an action-specfic ARAR "for remedial actions involving the recharge or reinjection of treated water into the basin." Resolution

92-49 was not designated as an ARAR or TBC.

Riverbank Army Ammunition Plant

FS Report prepared by U.S. Army by Weston Managers/Designers/Consultants, March 1993.

Resolution 68-16 was designated as an ARAR because it is a "proactive mandate rather than a retroactive mandate." Resolution 68-16 was designated as a TBC. Resolution 92-49 was not designated as an ARAR or TBC.

Norton Air Force Base

FS Report prepared by Department of the Air Force. February 1993.

Resolution 68-16 was designated as a TBC for the discharge of treated groundwater to surface water or reinjection into the aquifer. Resolution 92-49 was not designated as an ARAR or TBC.

DDRW-Tracy Operable Unit No.1

FS Report prepared for U.S. Army Corps of Engineers By Woodward-Clyde Consultants, December 1992.

Resolutions 68-16, 88-63 and 92-49 were all designated as ARARs.

Glendale Study Area - South Operable Unit

FS Report prepared for EPA and City of Los Angeles by James M. Montgomery, August 1992.

Neither Resolution 68-16 not 92-49 was designated an ARAR or TBC.

Sacramento Army Deport - Burn Pits

FS Report prepared for U.S. Corps of Engineers by Kleinfelder, Inc., May 15, 1992.

Resolution 68-16 was designed as a TBC. Resolution 92-49 was not designated as an ARAR or TBC.

Iron Mountain Mine

RI/FS Report prepared for EPA by CH2M Hill, February 1992.

Neither Resolution 68-16 nor Resolution 92-49 was designated as an ARAR.